

ONLY
58p

NEW COMPUTER EXPRESS

BRITAIN'S BIGGEST SELLING COMPUTER WEEKLY

AMIGA

- Amazing astronomy
- Ultra Design pro CAD
- Typhoon Thompson

ST

- June Atari show
- Mekon's laser
- Rainbow Islands

PC

- Pirates jailed
- Optical card reader
- CBM Apricot bid?

CPC

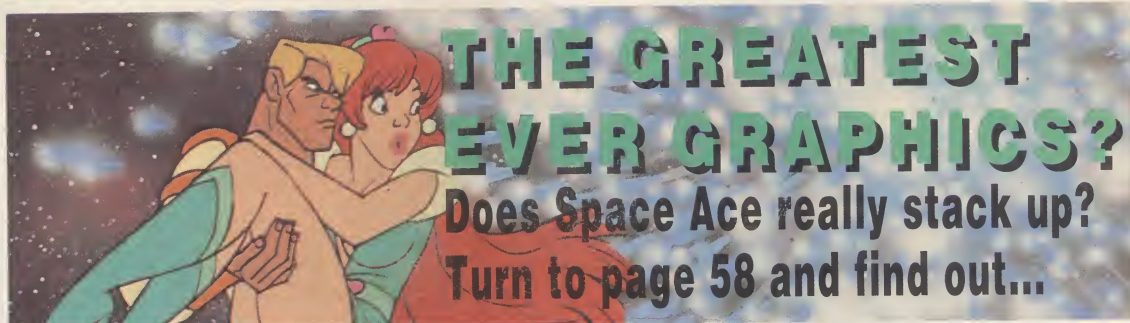
- Comic book capers

BBC

- Sim City soon

C64•PCW•XE
SPECTRUM
QL•ARC•MSX

SPECIALIST COLUMNS



THE GREATEST
EVER GRAPHICS?

Does Space Ace really stack up?
Turn to page 58 and find out...

ATARI SPRINGS ST SURPRISE

Express uncovers secret plans
for three new bundles

All is revealed on page 3

THE PINT THAT GOES TO YOUR HEAD

Those weird Guinness records are coming to
your computer. Pure genius?

- see page 54



MODEMS, PRINTERS & PORTABLES

Read Shopping Express for 28 pages of Britain's best computer bargains



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SOFTWARE PIRATES GET JAIL SENTENCES

Two men are currently whiling away four months in one of Her Majesty's prisons - for copying software.

Francis Johnson and Christopher Swallow pleaded guilty to charges of criminal deception and breach of copyright at Staffordshire Crown Court, and were sentenced to four months imprisonment each for illicit copying of computer software.

The men had been trading under the name Alpha Omega Business Systems, which was supplying copies of programs from such companies as Systems Union, MicroFocus and WordStar International.

Acting on information supplied by Systems Union, the Federation Against Software Theft and Staffordshire Police Fraud Squad swooped on Alpha's offices.

They found what they described as an Aladdin's Cave of illegal software.

Systems Union marketing director Herman Bruce warned others of the perils of computer software piracy. He stated: "I hope that the stiff sentences imposed on the offenders will serve to highlight the serious nature of the offence and help stamp out piracy."

American professor predicts end to virus chaos

VIRUS SHIELDS WILL PROTECT COMPUTERS

All computers in the near future will come with built-in virus shields, ending years of troubles wreaked by the rogue programs.

That's the prediction of Professor Lance Hoffman, head of computer science at the George Washington University of Washington DC. He says the virus problem will become so ferocious over the next few years that users will demand protection at all levels.

"By the end of the decade we're going to see an increase in the number of viruses and a change for the worse in their nature," he told Express. "I can see another Chernobyl, triggered by a com-

puter virus, just waiting to happen.

"It all depends on the way things go, but virus shields will be in place by the end of the decade."

He predicted that the shields would be designed so that even the most ingenious types of viruses and Trojan horses would be foiled.

Despite apocalyptic predictions, he has also warned against getting the virus threat out of proportion. "We should keep them in perspective. Just as the killing of innocent hostages by terrorists has more psychological impact than the same number of deaths on the highway, someone with a disk trashed by a virus may be

more irate than someone who loses eight hours work because of an electrical failure."

Meanwhile, according to on-line news agency Newsbytes, a computer virus which urges the legalisation of marijuana has appeared on governmental computers in Canada.

The virus appeared on 34 PCs at the Canadian House of Commons. Without any apparent trigger the message: "Your computer is now stoned. Legalise marijuana" appeared on monitors. The virus itself does not appear to be harmful, although it is difficult to wipe it off the system.



• Space Ace: more superb laser graphics from Bluth to come

Dragon's Lair sequel due this year

A new version of the hit interactive cartoon *Dragon's Lair* is to be launched later this year.

Dragon's Lair II will once again squeeze amazing graphics from the ST and Amiga, but there are also PC and Macintosh versions in production. *DLII* has been produced by Don Bluth and Readysoft in Canada, also responsible for the highly-acclaimed *Space Ace*.

The first *Dragon's Lair* began life as a Laserdisc arcade game six years ago -

way ahead of its time. The images from that disk were digitised and transferred to magnetic media.

The second game will be released this autumn and it is understood that an arcade version of the game is to be launched by Nintendo which holds the rights. In the meantime, interactive cartooners will just have to sit tight until the new adventure arrives.

• Bluth's methods are analysed on page 58.



• Bros: celebrating a high score on Super Mario Brothers.

Name game

Some pretty wonderful people are getting into the joys of gaming. According to Nintendo, its list of 63 trillion squillion subscribers includes teen popsters Bros.

Apparently Matt and Luke aren't the only famous bods who enjoy a good blast. Others include Michael J Fox, Don Johnson, Henry 'The Fonz' Winkler, Bruce Willis, Matthew Broderick, Whoopi Goldberg and Goldie Hawn.

One fascinating inclusion in this veritable hall of fame is Robin Givens - ex-love of erstwhile boxing champ Mike Tyson. Could she be giving Mikey a pseudo bashing in hit game *Mike Tyson's Punch Out*?

'Discovery' ST at £299 • STE at £399 • 1040STE bundle at £499

ST PACKS REVAMPED FOR SPRING OFFENSIVE

AN EXPRESS
EXCLUSIVE

Details of Atari's secret plans for the ST's immediate future have been uncovered by Express.

Within the next fortnight the firm will announce a new initiative designed to make the ST "the best entry-level option on the market". The firm is to sell its STFM machine for £299, with an attractive bundle incorporating not just games but also more useful packages to "really get the first-time user started". Like a previous entry-level ST bundle, it will be called the Discovery Pack.

An intriguing approach is also to be taken with the new STE. That will cost buyers a £100 premium, retailing at £399. Purchasers of the 'Amiga beating' STE will not be offered the extra goodies which make the entry-level option so attractive.

However, for £499 upgraders will be offered a 1040STE along with up to £400 worth of Kuma professional software, making it a complete system for serious users.

Current bundles allow ST buyers to choose between a bare system for £299 or the successful Powerpack for £399, with no difference in treatment between the STFM and the STE.

Insiders at Atari say anyone who has already bought an STE – either with or without the extras – can "count themselves lucky". The firm says that, despite initial incompatibility problems with leading software packages, the upgrade is now fully operational.

The Discovery Pack will come with five games – there's also a paperback book called *Discover Your ST* which will



• ST: new approach to bargain bundles.

help inexperienced computer users get to grips with the new machine. A disk-based tutorial is also included.

However, added to this are a number of extra packages, the nature of which is a closely guarded secret within Atari Towers. The company is anxious that news of the new pack should not damage sales of those machines currently in retail and distribution channels.

Atari had hoped that this new plan would herald the arrival of the STE. However, a dock strike at Folkestone before Christmas and general shortages of STs meant the firm had to fly 20,000 STEs into the country to satisfy demand.

Therefore, buyers had a 50:50 chance of receiving an old STFM or the new STE. The advantages of the newer machine's technical specifications now appear to outweigh the disadvantages of

incompatibility problems, experienced by 'premature' STE owners.

Clearly, Atari is hoping to steer serious buyers toward the value-added £499 pack. For an extra £100 STE buyers are being offered a bargain in terms of the extra software and memory.

Reluctantly commenting on the leak, UK managing director Bob Gleadow told Express: "What we want to do is position the 520ST as a first-time buyer's machine. We're trying to separate first- and second-time buyers with an attractive £299 package and another at £499 where we'll be looking to sell the 1040."

He said he believed the new ST package would be better value than even lower priced 8-bit machines. ■

• In next week's Express there is an exclusive interview with Atari UK's Bob Gleadow.

Atari shows its stuff

Atari is to stage its own show based around the company's full line up of products – from the Lynx hand-held games machine to the ATW transputer.

The event is to be held at the Hammersmith Novotel in the first weekend of June. It's the first time Atari has organised the show since Database Exhibitions scrapped its Atari Show late last year.

Atari is hoping to offer enthusiasts not only the chance to pick up bargains from the usual box shifters but also an opportunity to see the firm's plans in full.

It will be based on two floors. Visitors upstairs will be offered the chance to enter an 'Atari workshop' where various hardware technical boffins and software developers will be on hand to "help you get the most out of your machine".

There will also be a DTP section – an area to which Atari is attaching much importance. There's also a chance to fiddle around with prospective purchases such as the Portfolio and Lynx or simply look at more expensive articles like the TT and ATW transputer. Atari-related software and hardware bargains will be situated downstairs.

Entry is a respectable £2 per person or £4 for a ticket covering families of up to four members. ■

Pop video fun for the Bitmap Brothers



Computer graphic experts The Bitmap Brothers have been sought out by pop band Oh Well to add some pretty colours to a new promotional video.

The video for new song *Radar Love* features Amiga-generated graphics overlaid on real footage. Director James Le Bon often uses such effects on his work – this time though he decided it was time to opt for computer graphics rather than hand-drawn overlays.

The Bitmaps used an Amiga with extended memory and an accelerator board to generate on-screen ripple effects. Computer graphics are to feature more and more in pop videos, mainly because of the relatively low cost of such productions. ■

• Left: Radar Love gets Amiga-aided graphics.

Best seller

New Computer Express has been confirmed as Britain's biggest selling computer weekly.

Official sales figures from audit body ABC put average weekly sales at 22,277 for the period July to December 1989. That's more than 50 per cent higher than any magazine operating within the same market. Express sales this year are already running at several thousand above the ABC figure.

Many thanks to all our readers. ■

Cracking crackdown

The anti-piracy group FAST is to announce a new set of measures aimed at combating software theft.

Details of the schemes, which are intended to help catch thieves, will be announced this week. It is expected that they will be based on projects which have been developed in the US and Canada. ■

Aussies pick Which

Ten Australian companies will be setting up a special series of stands at the forthcoming *Which Computer?* Show exhibiting a series of products not seen before in the UK.

The firms are bringing hardware and software solutions up from Oz where they've already been successful. They're hoping that their goodies will generate enough interest to warrant UK launches and distribution deals.

One product from Datapac International is a multi-user operating system for PCs allowing up to 23 people to operate from a single PC.

There's also a personnel management solution from Frontier software which allows companies to extract, sort and file information about employees.

Add to that an anti-hacking device, a board which turns a 286 into a 386, and a series of voice-mail products and you have an intriguing selection. It's all been organised in conjunction with the Australian Trade Commission.

The *Which Computer?* Show will be held at the National Exhibition Centre in Birmingham in April. ■

New chip aids micro movies

On-screen multimedia images will soon be greatly improved following the release of a new chip which can compress images by a factor of 200, writes Jerry Glenwright.

Until now, the use of high quality still and motion pictures in computer applications was severely restricted due to the heavy demands on memory, and the processor time needed to store and manipulate them. Today's compression algorithms use 800Mb of hard drive space to store just 20 minutes of motion pictures from video tape.

However C-Cube Microsystems, an American consumer electronics company, has perfected a VLSI (very-large-scale integration) chip which reduces each colour image to half a percent of its former size, enabling far more frames to be stored and viewed.

The CL550, as the new chip is known, is the first to implement the joint Photographic Experts Group standard for image compression, in an attempt to create one standard that can be used throughout the image processing industry. "We believe the JPEG international standard for image compression, and the CL550 will open vast opportunities in the multimedia marketplace" said C-Cube's president Edmund Sun.

Desktop computers equipped with a CL550 will be able to store, edit and transmit entire photographic-quality movies over local area computer networks, greatly improving the computer's primary role of providing information.

The CL550 will be widely available by June, with a bulk-deal price tag of \$155. Contact C-Cube on 0101 408 944 6300 for further information. ■

Sensational \$35 million bid for UK computer firm

COMMODORE TO BUY APRICOT HARDWARE?

Commodore is believed have put in a bid for the hardware business of veteran UK firm Apricot.

Apricot is understood to be considering bids from up to a dozen prospective buyers, including Epson and Acer. However an American company, believed to be Commodore, has pitched in with a reported bid of \$35 million.

According to influential trade magazine *MicroScope*, that bid is likely to be successful, giving the buyer a large chunk of one of the UK's most famous computer companies.

A decision will probably be taken within a month – the end of Apricot's financial year. If Commodore does buy the hardware business then it will have access to a wide range of middle to high-end PC products, as well as the famous brand name.

The firm would also have access to top-end business currently enjoyed by Apricot and access to contacts in the public and corporate sectors, both of which have long been eyed enviously by Commodore in the UK. There would also

be UK manufacturing facilities. All this could be slotted in to the new Systems Division.

However, neither firm is prepared to comment on the matter at this sensitive time. Commodore UK managing director Steve Franklin has given a firm "no comment" on the matter and has refused to either confirm or deny any possibility that Commodore has put in a bid.

However, he told *MicroScope* that the firm did intend to introduce EISA and MCA standard machines in the near future – an area in which Apricot has already dabbled.

On Commodore's ambition at the top end of the computer market Franklin said: "Admittedly we have only about 0.1 per cent of the corporate market in the UK, and we need to get to 5-8 per cent to become a serious player. We have plans to do just that."

Apricot's communications director Jes Dorrell was also unwilling to give details, restricting himself to a confirmation that the firm is in negotiations with "a number of parties".



• Franklin: ambitious

If Commodore does buy Apricot's hardware division it will be the most important purchase since Amstrad bought the Sinclair name. ■



• Colorado: beat the baddies and get them there beavers.

Trapping the games player

French software company Silmarils has hit the UK with a new adventure game called *Colorado*.

It traces the wanderings of a trapper in the 19th Century who is stuck out in the wilds with quite a lot of baddies to contend with.

There's lots of canoeing and shoot-

ing and other such activities, as well as a few logic problems to solve.

It's the first game to come out of a distribution deal between Silmarils and UK firm Palace.

Colorado is out next month, with versions for the ST, Amiga and PC costing £24.99. ■

Channelmark's Power change

Channelmark UK – the firm behind the low-cost business accessory software range *Power-Up* – has changed its name.

Not entirely surprisingly the company is now to be called... *Power-Up*. "Everyone calls us *Power-Up* so why keep swimming against the tide?" said sales director Graham Lomax. "Basically it gives us more mileage out of the *Power-Up* brand name and eradicates any confusion."

Power-Up sells thousands of useful little PC programs which do anything from printing out labels to aiding the design of forms. For a catalogue call 0276 65272. ■

Four-pack out

A new games compilation is launched this week featuring some of the best games from lesser-known publishers.

Hyperaction from Impressions features Logotron's highly-acclaimed *Defender* game *StarRay*, *Hellbent* from Novagen, *Ringside*, a boxing game from German firm EAS, and Impressions' own *Raider*.

The pack costs £24.99 on the Amiga; the ST version features *Brickbusta* instead of *Raider*. ■

Second-hand season

Bargain hunters in the US can look forward to a bumper crop of second-hand goodies following the spectacular crash of junk bond company Drexel Burnham Lambert.

The company is to sell off \$140 million worth of hardware and software. But most of the buyers will be in the financial market.

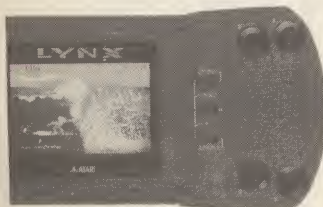
Amazingly, the firm wants to sell it all off as packages – hardware and software complete with human operator. Some 500 computer staff have to be relocated. ■

Sumo like it hot

Aaaiiee! It's time to get grappling and grunting on your computer. Martial arts are back.

MicroProse is to launch a four-pack of fighting titles incorporating sumo wrestling, kung fu, kendo and freestyle. Gamers will have to battle their way through various rounds until they reach Master status.

One interesting feature is the ability to decide which moves correlate to various joystick movements. You can pre-program up to four moves for each joystick movement. *Oriental Games* will be launched on all major formats in April. ■



• Lynx: enhanced versions

Lynx 2 coming

Atari is already working on enhanced models of its Lynx hand-held games machines.

Blueprints for the new models have been drawn up, but the plans are at an early stage. The Lynx 2s won't be introduced for another two years although Atari promises they will be worth the wait. ■

Euro Word

If you're one of those people who don't know their 'bonjours' from their 'auf wiedersehens' then maybe it's time to invest in some foreign language dictionaries.

Luckily, word processing giant WordStar has just launched four such items for the PC. They are available in the four main European languages – French, German, Spanish and Italian and cost £49 each (or £99 for the lot).

The dictionaries can be used to check for embarrassing spelling errors and work with any version of WordStar itself. Call 01-643 8866. Ciao... ■

MORE HONG KONG PIRATES SCUPPERED

The authorities in Hong Kong appear to be winning a battle against software pirates.

Last week customs officials seized illegal software and manuals with a theoretical value of nearly £1 million. In various raids nine people have been arrested.

One was a 38-year-old man who had been running an international mail-order operation with customers in New Zealand and the US.

And police arrested seven more people working out of a shopping arcade infamous for its trade in illegal products of 'a varying nature'.

Late last year anti-piracy cops busted one of the colony's biggest piracy operations.

The man the police arrested was said to have been personally controlling nearly 70 per cent of Hong Kong's thriving software piracy business. ■

Computer files label people as criminals in error

DATA PROTECTION: KNOW YOUR RIGHTS

The Computer Data Registrar, Eric Howe, has launched a new leaflet designed to let you know your rights when it comes to computer data.

Howe says that despite the efforts of the Registry there are still many anomalies on official computer systems. Cases of people being labelled as criminals on computer records have been reported, as well as disturbing incidents of confused medical records which list perfectly healthy people as suffering from various maladies.

"The growing number of cases with

which we have been dealing show that, for instance, you can get wrongly labelled with a criminal record or be unfairly listed as a bad credit risk – the list goes on and on," said Howe, "It can result in serious consequences for the people concerned."

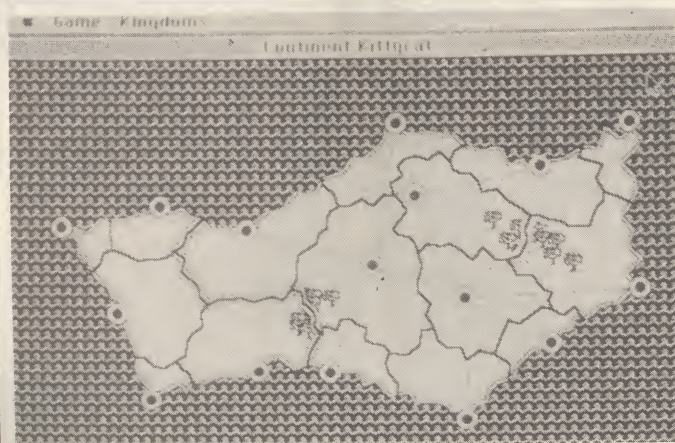
"One of the reasons why the Data Protection Act was introduced was to help resolve some of these problems, but there are still too many people who only have a vague idea of their rights, what we can do to help them and what they can do to help themselves. The new

leaflet is designed to provide guidance on these questions."

The Registry now receives about 60 complaints every week – twice the number of a year ago. The registrar hopes that the leaflet will prompt more people to take action.

The leaflet is called *If There's a Mistake on a Computer About You*. If you want to know where you stand, get one free from: The Office of Data Protection Registrar, Springfield House, Water Lane, Wilmslow, Cheshire SK9 5AX or call 0625 535777. ■

MORE GLOBAL DOMINATION



The author of the award-winning world global politics game *Balance of Power* has just finished the sequel – *Guns and Butter*.

Chris Crawford has come up with a more economics-based simulation for the follow-up game. Set on an imaginary continent, it features a small country with ambitions to global empire. You must first build up the economy of your country, then put it on a war footing, producing the guns of the title.

The game uses an easy-to-control user interface to enable you to make your decisions and forge alliances with neighbouring despots. Graphs showing production levels can be altered to control the factories, and armies are placed with the mouse.

The game features thousands of variables, and there are more than a billion different continents to conquer.

Combined with the game's three difficulty levels, there should be many hours of play in the scenario.

The game's publisher even claims it has some educational value, teaching the player the "implications of modern macroeconomic and geopolitical theories".

That aside, *Guns and Butter* will be distributed in this country by Mindscape International. Versions will be available for IBM PC and Apple Macintosh in March, priced at £29.99 and £34.99 respectively. No plans have yet been made for other computers. ■

Virus protection for troubled Mac

If you're fortunate enough to own an Apple Macintosh you will have noticed the amount of public domain and 'home made' software floating around.

One side effect of this is an unhealthy number of viruses on the loose for that machine. There are dozens of them, some of which simply slow the machine down, some with 'amusing' messages, and some which really do damage.

Microcom Software has just launched a virus detection and prevention package for the Mac called *Virex*. It's been put together to combat new strains of the nastier viruses currently sweeping across Europe from the US.

"The latest strains of virus have shocked a lot of people who claimed that their product would be able to detect any new virus without being updated," commented Microcom Software managing director Barry Marshall-Johnson. "We've been extremely aggressive about dealing with new viruses and we want to emphasize the importance of offering rapid updates to cope with any new or unconventional viruses that are certain to appear."

Virex costs £59. Call Microcom on 0483 740763. ■

Jerry Glenwright reviews the alternative book on hacking

HOW THE GOOD GUYS BEAT THE COMPUTER CRIMINALS

In the beginning there was the *Hacker's Handbook*, a controversial little tome detailing the decidedly shadowy underworld of computer hacking – breaking into and manipulating computers owned by the military, government, educational establishments and the like. Thrilling stuff for those who like their computing raunchy.

Now it's the turn of the opposition with Clifford Stoll's *The Cuckoo's Egg*, a factual account of the electronic detective's adventures tracking hackers around the globe.

Stoll first came to prominence during February 1989 after he successfully located and prosecuted several West German hackers who had used a Berkeley research laboratory's Unix computer as a gateway into American military and government networks.

As system manager of the Berkeley

machine, Stoll began to notice shortfalls in the on-line accounting. Suspecting undergraduate pranks, he arranged a series of traps in an attempt to locate those responsible. What he discovered however, was computer infiltration on a grand scale, coming not from his beloved Berkeley campus, but deep in West Germany, home of the infamous Chaos Computer Club hacking group.

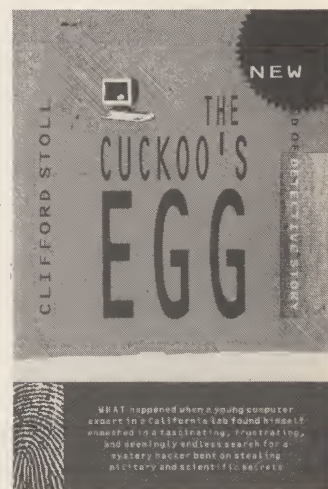
Expect a deathly dreary account of electronic tampering and you will be more than a little surprised, for *The Cuckoo's Egg* is a thrilling chase across computers, networks and continents worthy of the master William Gibson himself. And like a good crime novel, the book will have you guessing as to just who's responsible until the very end.

But what sets this book apart from the ever-widening computer crime chasm on the bookshelves is the 'human' element involved. Stoll interweaves the

hacker's escapades with his own amorous adventures in a shared house in downtown LA. Being dragged from bed (and his lover's arms) every time the hacker logs on and trips the electronic alarm, stepping naked and wet from the shower to rush to his Macintosh personal computer – colliding with a violin-playing housemate – and being deeply frustrated with the reluctance of crime fighting agencies such as the FBI and CIA to get involved, each merrily passing the buck to the other.

It's all here, good guys and bad guys, hackers and cyberpunks, thrills, spills, romance and computers. Lucid and competently written, *The Cuckoo's Egg* is an enjoyable read for all those even vaguely interested in high-tech.

The Cuckoo's Egg by Clifford Stoll, published by Bodley Head, is available priced £12.95 from all good High Street bookstores. ■



• Stoll's book: naff cover but a good read.

Low tech help from CRL

An environment that will allow non-technical people to write a variety of complex programs has been developed by the veteran software publisher CRL.

Called DUNE (Developer's Universal Non-programming Environment), it can be used to write programs with interactive facilities and high-quality graphics on floppies, hard-disks or interactive CDs when they become available.

DUNE is aimed at three main markets and computers: IBM compatible PCs, probably for business applications; Acorn Archimedes for education and Commodore Amiga for home and leisure. ■

Keyline on line

500,000 Keyline Shopping terminals will be in British homes by next year, according to the company which makes them.

Owners will be able to access a range of services from ordering supermarket goods to betting and banking provided by 18 well-known retailers. The brainchild of Chris Curry, ex-boss of Acorn, each small portable terminal will feature a built-in smart-card reader to hold password and automatic debiting data and will cost £50. Trial runs of the system will begin in the summer. ■

REVENGE OF THE HAMSTERS

THE Stun

COMPUTER ENTERTAINMENT SOFTWARE

ROCK STAR ATE MY HAMSTER

By Stun reporter
COLIN JONES

Stun EXCLUSIVE
Sexy Wimbledon masseuse Suzy Nokers, 27, last night told how ageing sicko rockstar HAZZY HASBEEN, 73, devoured her hamster, Bobo at a wild showbiz party on Rockall. "I didn't – I'm a vegetarian!" said Hazzzy.
Full story inside.

BUBBLES - I'M FOREVER BLOWING!

Monkey Bubbles' nights of baked bean bingeing!

We exclusively reveal today the REAL REASON why mega moneybags rock-star WACKY JACKO seals himself in an OXYGEN TENT!

– Full story on page 5



• Remember Rock Star Ate My Hamster, the game which puts you in charge of a rock artist? Well, it's just been re-released by CodeMasters as a budget game for £2.99. In the game you get the chance to manage one of a number of popsters including Dross, Annie Smallpox, Bill Collins and Dorrissey. ■

Computer tracks cheats

A new computer has been invented which could put an end to cheque book fraud.

The American machine can be taught to read handwriting and confirm whether or not a signature is genuine, an operation taking only four seconds.

Cheque book cheats would be caught out in seconds if the machine is taken on by retail organisations. It is claimed that the computer – invented by the Nynex Corporation – can read even virtually illegible handwriting and can cope with style changes. ■

Bloc busts out

Four new specialist PC programs have been launched by Bloc.

Corporate Ladder allows users to create organisational charts, diagrams and trees based on products or families of products. You enter the text and the format of the chart and the program does the rest. It costs £69.

There's also *PrintRite*, an £89.95 print spooler for up to five printers.

DiskVision is a hard disk manager and archiving system costing £69.95, while *PopDrop Plus* allows you to install desktop accessories on your PC without taking up too much memory. It costs £89.95. Call 0983 405600. ■



Sharp Organises a 64K computer for the wallet

Sharp has launched a new version of its wallet-sized electronic organiser – with twice the memory of the original.

The Sharp IQ-7200 has a 64K memory and measures just 9cm by 17cm. It weighs 250 grammes and comes with a built-in calendar, diary, world clock, telephone directory and memo pad offering 12 pages of electronically stored briefs, reports and letters.

Users can also load in a variety of IC cards including a thesaurus, an eight-language translator and a time/expense manager.

There's also an optional PC link which costs £99. The IQ-7200 costs £179 with the 12-month-old IQ-7000 retailing at £149.

• Left: The Sharp Organiser now has a higher IQ

Brother gets the Blues

Printer and PC manufacturer Brother has extended its sponsorship deal with soccer club Manchester City.

The deal is worth £1 million to the club – currently placed in the bottom half of the first division. Brother initially signed a three-year agreement at the start of the 1987/88 season. The new deal secures the relationship for a further three years.

One of the reasons for choosing City is Brother's proximity to Maine Road – its European headquarters are at Audenshaw, Manchester. Apart from computer kit, Brother also manufactures fax machines, mechanical office equipment and white goods such as microwave ovens.

Other computer companies affiliated to the football league include Commodore (Chelsea) and NEC (Everton). Amstrad was also close to tying a deal with Spurs a few years ago.

Mad prices in Manchester

A new 'buyers show' is to be launched this month in Manchester – Computer Cash 'n' Carry '90 promises loads of bargains for those of us with a tight budget.

The EMAP Exhibitions event is to be staged at the Manchester's G-Mex from Thursday March 15 to Sunday March 18. It costs £4.50 to get in, or £10 for a family ticket. "A lot of exhibitors will be having special show offers," claim the organisers. Call 01-404 4844 for more information.

Jersey joins the smart set

For the first time anywhere in Britain, inhabitants of the exclusive island of Jersey will soon be able to pay for most of their purchases with a smart card.

Terminals will be situated throughout the island at retail outlets, petrol stations and leisure centres. The cards will also carry medical information about their carrier, enabling the local health service to quickly diagnose ailments. The Jersey MultiCards will be available in the next few months.

The first console games for under £10 are here

SEGA DROPS PRICES OF ITS CARTRIDGES

The price of a large range of Sega game cartridges has been slashed in a surprise move by the console's European distributor Virgin/Mastertronic.

As of March 15, six titles – *Enduro Racer*, *Ninja*, *Rescue Mission*, *Super Tennis*, *Teddy Boy*, and *Transbot* will cost £9.99. It's the first time Sega games have cost less than £10.

Six more games have been reduced to £12.99. They are *Action Fighter*, *Aztec Adventure*, *Fantasy Zone*, *Global Defence*, *Secret Command* and *World Grand Prix*.

Console cartridges have traditionally cost anything from £20 to £30 each. Virgin says there are plenty of hardware owners who want to increase their library of games without having to spend £22.50 on each product.

The firm claims that there are now at least 200,000 Sega owners in the UK. "One of the only consumer negatives about console software has been its high price – we have therefore been working with Sega for some time in order to try to create a low-priced software range and we're delighted that we have been able to achieve this," commented brand

manager Philip Ley late last week.

Almost immediately, Nintendo distributor Serif hit back. In a public statement the firm's deputy managing director Rae Potter said: "I think we're seeing a competitor on the run. Sega are either seeing a lower than expected demand for their products or are worried about the rapid progress Nintendo is making – probably both."

He also taunted Sega about its poor performance in the US compared to Nintendo. Nevertheless, in the UK the Sega is way ahead of the Nintendo in terms of sales.

Sea the latest accelerators



What has windsurfing got to do with PC enhancer boards? Hypertech has the answer.

The firm will be launching a series of turbocharging boards at the Which Computer? Show in April and will be giving a surfboard away in a special competition. The surfboard may not be a lot of use to most of us, but PC owners might want to get stuck in to the add-on boards.

The low end Hyperace II is pitched as "the ideal upgrade product for PC users". It slots into a number of 8086 and 8088 PCs – including Amstrad models – and gives you extra 286 speed. Retail price is £299. Call 0627 63936.

CompuAdd adds 286

CompuAdd has launched a new small footprint 286 PC.

The CompuAdd 220 comes with 1Mb of RAM expandable to 4Mb. It comes with a 40Mb hard disk with 80 and 110Mb options. The machine runs at 20MHz, has five expansion slots and two serial ports.

It costs £1,389 and comes with free 12-month on-site maintenance cover. The 220 replaces a larger model which used to cost £350 more.

Meanwhile, CompuAdd is to start selling 'Network Starter Kits' each of which will feature Novell network software, Ethernet hardware and a choice of 286 or 386-based file server.

The Workgroup Starter Kit will link up four machines, while the Department Starter Kit can manage eight.

Call CompuAdd on 0272 254789 for more details.

COMMENT

With the latest round of bundling for the ST, is Atari deliberately discouraging prospective buyers from taking the STE as a 'bare' package?

Journalists' diaries have carried the pencilled comment 'New package for ST?' against the end of February or start of March for many months now, so it comes as no surprise to learn that Atari does indeed have plans for re-bundling the machine.

What was not so easily foreseen – though perhaps in retrospect it should have been – was precisely the type of twin-pronged initiative that the company would devise for the ST's assault on the market this year.

It was assumed in some quarters that the new STE would immediately become the *de facto* ST standard, and that the STFM would simply become Last Year's Model almost overnight. Stocks of the old machine would be run down during the spring (while the myriad software compatibility glitches were ironed out) and the STE would emerge like some sort of electronic butterfly for the summer.

NEATLY TAILORED

Of course, any such neatly tailored plan would, in any case, have been superseded the moment it became necessary to ship in advance STE units when STFM stocks proved inadequate to satisfy the Christmas market. A 'clean' launch for the STE was impossible.

This aside, Atari's decision to persist with the STFM as a 'first-time buyer's machine' is an interesting one. At £299, the Discovery Pack does not change the size of cheque which must be signed to take possession of an entry-level ST, but the mysterious package of bonus software which will be bundled with the STFM means that, in real terms, the price of the machine has been reduced.

If the value of added extras is in any way comparable with that involved in the discontinuing Powerpack, the

effective price-cut on the STFM is as much as £100 – good news for buyers who have hung on for post-Christmas bargains, and presumably providing a stock-flow boost to Atari over the traditionally lean summer months.

The way that Atari is handling the STE adds to one's impression that the company is at least passively discouraging the 'bare machine' concept.

At £399 the bare STE compares unfavourably with the Powerpack that, price-wise, it directly replaces. The current package (theoretically if not actually containing only STFMs) has bundled software with a notional value of around £500 – an astonishing figure to place as the premium on the newer machine.

SERIOUS

The £499 1040STE bundle, on the other hand, will come with a quoted £400 worth of 'serious' software. Interestingly, both the price of the package and the stated value of software precisely match a 'Professional Pack' already available with the STFM. So for users of such software, the STE comes at exactly the same price as the machine it replaces.

Perhaps it is to read too much into this to regard it as a thoroughly calculated and concerted Atari push to represent the ST as far more than a games machine, but this will certainly be the net result of applying the proposed price bands.

But then the workings of Atari's corporate mind are never easy to fathom. Does the new set of bundles imply that the early STE release was not a fiasco at all, but a way of supplying 'cut-price' units which were paid for by their owners in trouble-shooting?

The idea is attractive, but in the end probably no more than fanciful. In all events, the proof of the bundles is clearly to be found in their units sold. ■

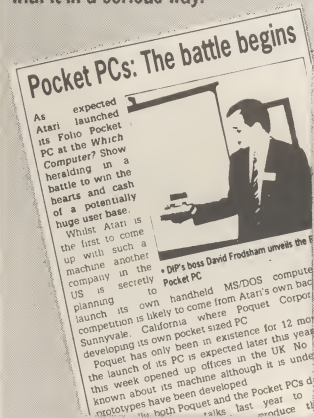
FROM The ARCHIVE

ONE YEAR AGO

It was the week of the *Which Computer?* Show at the NEC, Birmingham, and there was an absolute orgy of unveiling, revealing releasing and announcing ...

Commodore finally produced a hard drive for the Amiga 500. Price predictions for the A590 hovered around the £500 mark (it came out at £445), but it didn't actually become available until September.

Acorn trotted out its UNIX workstation with 'a fistful of baffling applications and software'. However, since it was priced at £3,500, not too many of us ever had to grapple with it in a serious way.



Atari brandished its much-hyped Pocket PC Portfolio, in the hopes that no one would notice that the Mega 1 ST hadn't quite arrived.

The Transputer Workstation, however, buzzed away impressively and fascinated the crowds.

For once Amstrad didn't have a lot to say, except that it was confident at least as far as the success of the PC2000 was concerned.

Elsewhere – London's Baker Street to be exact – Level Nine was winning

what was claimed to be Britain's most prestigious 'adventuring' award.

Ingrid's Back was voted Best Adventure of 1988, despite receiving only lukewarm reviews when first released the previous autumn.

The trade press was 'rocked' (that is not to say, surprised) by the news that Telecomsoft was up for sale after a management buy-out effort came up a little bit short.

Speculation at the time concentrated on the giants Mirror Group, Mediagenic and NEC.

The company was eventually purchased by MicroProse.

Gremlin was forced to call back its big name ST title *Federation of Free Traders* because of... gremlins. You can probably guess how much fun the headline writers had.

The game had taken two years to develop and it had been seemingly endlessly dogged by disaster.

The final problem was that the game could not be saved onto another disk – a major catastrophe for serious game players.

"We had people play-testing it for a week non-stop but some bugs will always get through," said a spokesman for the company, bravely.

"We made a few mistakes on the manual as well," he also said.

TWO YEARS AGO

The DRAM chip shortage made itself felt by pushing up prices on the computer front – predicted as a 12.5 per cent increase for Amstrad and 33 per cent for Atari.

Other manufacturers were expected to follow suit – although Commodore ruled out any increases 'for the foreseeable future'.

Commodore stuck to its guns and six weeks later even went so far as to cut the price of the PC1 by £100 to £399 – not a bad idea since the machine hadn't been incredibly popular up to that point. Indeed, Amstrad's solution had been to cut dealer margins...

Sources: *New Computer Express*, *Computer Weekly*, *Computer Trade Weekly*, *MicroScope*, *PC Dealer*, *Computer Talk*, *Datalink*.

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IBMRESSED

Us yokels in the West Country be easily overawed with the technical wizardry of them laddies and ladies from the New World. A recent circular from the world's favourite blue-striped computer company set out to check on its mailing list for journos. 'Which products did I want info on?', it asked - I ticked a few headings.

Within a week I was inundated with press releases on just about everything imaginable from IBM. So, in case you find that corporate giant as interesting as I do, here's what they contained.

IBM has just released a personal information manager called *Current*. It's the kind of product which can benefit from the multi-tasking of Windows, the environment under which it runs. Though not cheap, at £372.60, the press release is keen to point out that the user interface is in English - that'll be handy.

The other six releases turned out to be about a set of reduced instruction set computer (RISC) workstations, which start at around £10,000 and head on upwards.

The documents start with 'IBM Announces High-Performance RISC Workstation Family'. A reasonable approach, given the subject matter and the target audience - in all the document runs to 11 pages.

The next release, 'RISC System/6000 Powerstations and Powerservers Set the Pace for Price/Performance', followed up on the first announcement with details

of the actual machines - 10 pages.

I started to flag at 'IBMs Innovative Technology and Design Produces Advanced Workstations and Software' - nine pages - which develops the architecture of the new machines.

The next two - 11 pages between them - delve into a new version of AIX, IBM's Unix, and the graphical user interface designed to hide it from the user. Severely sleepy, I only just managed to wade through 'IBM Expands SAA/AIX Intercompatibility Capabilities' - which ran to 11 pages.

Does the word 'overkill' mean nothing to the IBM PR department? It is an important announcement, but 52 pages banging onto the breakfast table with your All Bran makes you want to run faster than the cereal does.

TURNING THE TABLES

As if to prove that I do actually do some serious work with the DTP kit I go on about in this column, last week I laid up the trade price list for Salcombe Dairy ice cream.

This is by far the most delicious ice cream on the entire planet, with the possible exception of Dayville's Butter Pecan. We had one of the ice cream Christmas cakes this year and it was amazing, though we couldn't blaze it in brandy - but I digress.

The original idea was to take the existing *Windows Write* files and just change the figures from last year. As it turned out, the files supplied were rather older than 1989 and it was necessary to lay out the whole list.

Turning to *Timeworks DTP* as the program I know best, this relaying proved to be a fairly painless job, once I remembered how to use the tab facility.

Tab in *Timeworks* come into force if you set the justification to 'table' mode. You then have 10 tabs available, which you can set to the nearest .01 inch.

Each tab can be left, right, centred or decimal. This system worked well using decimal tabs, except for a column which included £1.60 and 50p.

The 50p wasn't correctly aligned and had to be entered .50p for the decimal tab to take effect. There seems to be no way round this - I just hope none of

NERD AFTERTHOUGHT

While trying to convince a poet friend of mine that, yes, *Newman's Electronic Rhyming Dictionary* really does exist, said friend remarked upon a coincidence that thankfully did not come to pass.

My friend, like myself, is interested in

the acronyms that magically appear around us. Further, she said that it was lucky for the people who bring us *NERD* that the name wasn't Thompson's Universal Rhyming Dictionary instead.

I have to admit she has a point.

Salcombe Dairy's customers try and buy tubs of ice cream at half a penny a go! Indeed, as they say, the true proof is in the tasting, and if any of you out there are able to taste ha'p'orth of ice cream, do let me know.

KWIK, COPY THIS DISK

The Ctrl Alt Deli, distributors of many new and innovative products, seems to have been quiet for a while now. However, Nigel Grant, its MD, has just dropped me a copy of the company's own fast disk copier, *KwikCopy*.

The program replaces DOS's *DISKCOPY* command and is intelligent enough to copy only the tracks with data on them and to make multiple copies from a single read of the source disk.

To achieve this last feat, the program uses a temporary file on a hard disk to act as a spooler. *KwikCopy* is considerably quicker than *DISKCOPY*, with the increase in speed more marked for higher-capacity disks. For instance, to copy five, 1.2Mb disks under DOS on an 8MHz AT takes over 11 minutes and involves 25 disk swaps. The same operation under *KwikCopy* takes around three minutes with only five swaps.

Each copy is verified twice and the whole program is menu driven. It even checks you've got the source and desti-

nation disks in the right drives to avoid writing to the source by mistake. *KwikCopy* costs £56.35, and *KwikCopy Plus*, with extra optimisation and the ability to use EMS memory as a spooler, comes in at £67.85.

Ctrl Alt Deli is on 0908 662759. Oh, and Nigel, did *What Personal Computer* really say 'For simple, hassle free disk copy *KwikCopy* ain't all bad'? Shouldn't there be an 'at' in there, somewhere?

A BIG BUILD-UP

It's been as hard to tie down a copy of *The Builder* - a batch file processing package I've been very keen to try - as hard, in fact as it usually is to book a call from a good carpenter.

Software Paradise, in its usual helpful way, is still indisposed, as the program hasn't been released in the US. But a recent letter from Nigel Nock of SP assured me that he had actually held a copy in his hand, and that the first of the software packages had to go to customers who had pre-ordered.

Nevertheless, said Nige, you can tell it really exists as I've enclosed a photocopy of the box. Well, it may exist, but I'm not counting my chickens, particularly as there was no photocopy in the envelope!

Simon Williams

A LITTLE AMSTRAD CREDIT

Alan Sugar is renowned for disliking the Press, and with some justification. There have been some mean rumours circulated about the company which bears his name, and any rumour that can knock millions of pounds off your personal fortune, even if only notional, must hurt.

So, for what it's worth, I'm happy that he seems to have pulled the company round and set it on an even keel. I believe it must have been hard to sell some of the stockpile of 2000 series PCs, and even harder to push the Sinclair 200 - a fact which even Amstrad seems to have conceded.

What Malcolm Miller said of 'a new product



• The 2000 series - at first hard to sell.

every month from April' sounds exciting, and should encourage the share price. And the idea of doing something positive with the CPC range is long overdue.

Overall, things look

pretty bright for the company, though I agree with the Editor that its fax machine looks somewhat overpriced. At any rate, we shall certainly see what we shall see!



Virgin Mastertronic • £4.99

What is the worst job in the world? If the latest title on Virgin Mastertronic's budget 16 Blitz label is anything to go by, being Prime Minister of Israel is a hot contender.

Conflict is a political simulation set in the Middle East of 1997. You are surrounded by a powerful and ambivalent Egypt, a Syria heavily funded by the Russians, an unstable Lebanon, a neutral Jordan, a chaotic Libya and a war waiting to happen between Iran and Iraq.

Your long term aim is the collapse of four neighbouring governments. But your short term aim is survival, at least for the six months or so it takes you to develop and to build a nuclear weapon, after which people seem to take you



rather more seriously.

Each month you get the opportunity to influence your relationship with other countries by entering into trade negotiations, causing diplomatic incidents, supporting insurgent groups or other such actions.

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Your relationship with each country is influenced

by your relationship with its friends and enemies in a complex fashion that makes survival no easy matter. Despite its futuristic setting, the simulation closely follows the situation in the Middle East around 1979, and appears to react fairly sensibly to developing situations without obvious political bias.

Conflict does take a fairly cynical view of Israel's situation and is only a game, but it is accurate enough to set you thinking. (Thinking? Just reading the review gives me the heebie-jeebies - Ed). And for under a fiver this game represents exceptional value.

Matt Nicholson

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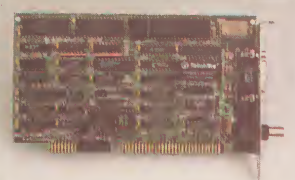
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SCHOOLYARD TALK

Gordon Fyfe (no, nothing to do with the banana company) wrote to ask how many STs have been sold to date. "My friends at school keep telling me that the Amiga has sold more. Is that true?"

No it isn't, Gordon, not by a long chalk. Not by a long chalk and a half, even.

In fact, the ST is well ahead, and likely to remain so for some considerable time – not least because of Atari's planned price cut of £100, which takes effect in April. (It's not exactly a price cut, since it involves the bundled software, but in any case it should help boost sales a lot.)

Atari insists that the total number of STs sold in the UK to date is in excess of 250,000. I understand that 100,000 were sold in the UK alone last year. (Incidentally, more STs are sold in the UK than in any other European country, with the sole exception of West Germany, where the total last year was more than 150,000 sales). The Amiga, on the other hand, has yet to pass the 200,000 mark. So there.

OFF THE SHELF

Kuma has just released an upgrade of the best-selling *K-Spread* spreadsheet program. The new version, wittily and at the same time pithily entitled *K-Spread 4*, features macro support, 200 statistical data management, arithmetic and conditional functions and improved access to graphing and page layout.

GDOS is included in the package to enable users to perform sideways printing. A printer driver is available separately for the Atari laser printer. *K-Spread 4*, which costs £130, is available from Kuma on 0734 844335.

Can you remember that ridiculous contraption Clive Sinclair launched all those years ago called the C5? Sort of a sheltered bicycle, apparently designed to give passing lorries something to aim for when turning left?

Well, this is nothing to do with the C5. But HiSoft has released *Lattice C Version 5* (C5, geddit?), which is kind of odd, since as I recall the last release was version 3. There are a whole heap of improvements, too numerous to mention

here, and the program is available from Hisoft on 0525 718181 for £99.95. If you already have version 3, an upgrade will cost you a mere £59.

What is more, the latest release in the already heavily-populated CAD market is Abacus' *Becker CAD*, a complex but extremely well implemented three-disk package that is PostScript compatible. And so it should be, at £229. Phone Abacus on 0706 524304.

NOW IT'S SHAKESPEARE

Did you know William Shakespeare's greatest hits are now available on ST disks? Did you, huh?

A company called, for reasons that I think should be obvious, Complete Works Publishing, has produced some of the immortal bard's best gear on 1st Word format on three disks, each priced at £6.95. That lot gives you nine plays, including *Julius Caesar*, *Richard III*, *The Tempest*, *Hamlet* and *Macbeth*, with the rest to follow – they have waited 400 years, another few months won't hurt.

Next up for the ST treatment are those perennial favourites Oscar Wilde, William Blake and William Wordsworth. Further information from Complete Works Publishing on 0403 86438.

CHEAP AT THE PRICE

Should you happen to have £1,625 about your person that you've no particular use for, you could do worse than parting with it in exchange for the poetically-named LRZ650, the latest laser printer for the ST from the very strangely entitled Mekon Computer Products Ltd. (If that name inspires you with confidence you're easily inspired).

The new machine it is said, at 1.3 square feet, is to have the smallest footprint (ie, the room it takes up on your desk) of any such device available. The LRZ650 has two paper hoppers, a claimed printing speed of six pages per minute, 4.5Mb memory, and five printer emulations as standard – including HP LaserJet II, Epson FX80 and IBM Proprinter. Further details from those Mekons on 021-766 6886.

Additionally, Software Express has released *Critic Bar Code Plus*, a bar code reader, integrated cash register and inventory control system that enables you to carry out such operations as sales, adding, deleting, editing and viewing stock by scanning that curious collection of thick and thin lines you find on just about everything you buy.

This, of course, is unlikely to have too many of you jumping up and down with excitement ('Great, I can read bar codes! Quick, pass the phone'), but it does indicate how the ST is continuing its steady advance into what sometimes gets called 'productivity markets.' I prefer to call it simply 'serious software.'

Critic Bar Code Plus comes as a complete system including an ST and a monitor, printer and software. Hence prizes start at just this side of a grand (now you

ON THE STREETS

Despite front page headlines in a computer magazine (not Express, I need hardly add), Ocean has of course secured the rights to *Robocop II* as everyone always expected it would.

Indeed software development manager at Ocean, Gary Bracey, has said that the company has been working hard on the game for going on two months already!

In addition, things

continue to look up for the beleaguered ST upgrade, the STE, with news that Digital Integration is to release a special STE compatible version of *F-16 Combat Pilot*.

And in case you missed it, Dirk Brzesinski, Peter Karl and Markus Hess, the three young German men accused of breaking into computer systems and selling secrets to the KGB recently

received suspended sentences of between 12 and 14 months each.

The trial over, and a figure of DM90,000 (about £34,000) put to the takings, German television went on to bring to the light of day the kit that had been confiscated from the undercover operation.

And guess what the men had been using with their modems and so on? That's right: an ST.

know why it's called serious software). On the off-chance this could be just what you're after, phone the good people at Software Express on 021-643 9100.

A POORLY DISGUISED PLUG

Young Bob Crossley, 16, of Swindon wants to know if the ST is any good at animation, and if so what the best program is. Since Bob is still at school and is therefore unlikely to have made his first million yet, I can suggest nothing better to him than to purchase the very latest issue of *ST Format*.

For, on the cover disk of that magazine he will find ANI.ST, a program I've mentioned several times in this column. It's a very highly rated animation program that used to cost £80 until very recently,

when its author retrieved the rights and put it in the public domain.

Furthermore, inside *ST Format* there's even a tutorial that should help you to get started, Bob! All this (and so much more) for a mere £2.95 – such remarkable value. Thank you and good night.

SOUNDS FASCINATING

Word has reached me that more than one company is working on a device to record sound directly to hard disk. The theory is that you use the ST as a very high-quality digital recording machine with accurate editing facilities. It's an idea that's been around for some time, but its appearance on the comparatively cheap ST would be a great boost.

Steve Carey



OCEAN •
£19.99

In the history of games development, success comes on the heels of success. And Ocean's last cutesy game was *New Zealand Story* which climbed all the way up to the top of the charts.

Rainbow Islands, the follow-up to *Bubble Bobble*, is also cutesy even though it has something of a complicated licensing background. Indeed, the computer conversion licence for *Rainbow Islands* started life under MicroProse's name, but after a legal wrangle with Taito – the coin-op company behind the arcade version – Ocean ended up scooping the licence.

And what a scoop! *Rainbow Islands* was a mega-hit in the arcades, and the computer version looks to follow.

The heroes of the game are Bub and Bob and they must progress through seven stages that masquer-

ade as seven different islands. On each island there are platforms, and Bub and Bob must gain the top of each platform.

To scale the platforms you can leap up to ledges but your best option is to fire rainbows into the sky. You can then scamper up these rainbows. As you learn to anticipate the game, you can fire rainbows and climb up at quite some rate.

Your potential for amassing a large score in the shape of collectable fruit is astounding. Not only is fruit scattered across most platforms but thousands of points can be found when you reach the goal.

But life isn't all a bed of jumpsuits and clod-hoppers: the island is positively hopping with insects and

other offending creatures. Dodging them while trying to complete the platform adds that little extra to the game.

The first few levels are no problem, but once these have been mastered, the game starts to become difficult. Fortunately, rainbows come in handy. You can kill creatures by firing rainbows at them. Alternatively, if the creature gets caught in the loop under the rainbow, it stays stuck until the rainbow disintegrates.

With graphics down-loaded from the arcade version and with superb playability, no sacrifices have been made in converting *Rainbow Islands*. As a result, you end up with a game that is certain to ride the charts skyward.

Mark Higham

PLAYING TIP

CHAOS STRIKES BACK

If you bought *Chaos Strikes Back* at Christmas and still haven't completed it, here's a tip:

There is a secret armour room which you can reach by walking through part of the wall in the armoured worm room where your quest begins.

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AMIGA

INTO THE UNKNOWN

The universe is, and always has been an interesting place. For thousands of years man has gazed in awe up into the heavens at the endless reaches of space. Now you and your Amiga can explore the universe with the release of *Distant Suns*, which comes from HB Marketing and Virtual Realities Laboratories.

Distant Suns is the follow up to that hugely-underrated package *Galileo*. The program provides one feature that astronomers hitherto could only dream about – the ability to view the night sky at any time in history (well, 8000 BC to 12000 AD is your limit), from any point on the globe.

The program contains 2,200 stars, 450 deep sky objects in an authentic, astronomically-correct sky. If this wasn't enough, the American producers even supply an expansion disk to add a further 9,100 stars to the program.

Distant Suns is available from HB Marketing, the good people who can be contacted on 0895 444433.

A1000 SAVIOUR

With the impending release of both Kickstart 1.4 and the Enhanced Chip Set, it seems that Commodore has forgotten A1000 users. Thankfully, third party developers have not.

One company in particular that A1000 users have to thank is Delaware Valley Software, who are soon to start shipping a board that will breathe new life into Commodore's original (and arguably the best) Amiga.

The Delaware Wonder Card is a very clever little device, indeed. It slots in as a replacement to the Kickstart daughter-board inside the A1000. This board then allows the Amiga 1000 to use both the ECS and Kickstart 1.4 (ROM-based).

Not only that, but once the ECS is installed, the A1000 can access all the new ECS screen modes and has the ability to use up to a megabyte of chip RAM.

Optional extras include a battery backed clock, an audio filter switch and the ability to software select between 1.2, 1.3 and 1.4 of the Amiga OS. How can an A1000 owner live without such a device? (My A1000 is going to get one as soon as they are available over here in dear old Blighty!)

Needless to say, as soon as it is available I will review this wondrous piece of hardware. Until then, Delaware can be contacted on 0101 215 446 9227.

TRACKERBALLS UP

Ever wanted an alternative to your mouse? What you need is a trackerball.

Until now there has been a rather surprising gap in the Amiga trackerball market. However, after many years of waiting, the Amiga is soon to gain not one, but two of the blighters.

Trackerballs have many advantages over the mouse. For one, unlike a

PLAYING TIP

INSANITY FIGHT

When the going gets tough – the tough break the rules.

For all you *Insanity Fight* fans who are finding the alien blasting too much to handle, here's a little cheat sent in by reader Steven Kelly (who is, despite the uncanny similarity, not related to Steve 'Bitmap' Kelly).

All you must do is to press both mouse buttons, the 'L' key and the fire button, and you will be instantly zapped through onto the next level.

mouse, a trackerball requires no space for movement, which is essential if you're a musician. The use of a trackerball can also enhance many games. Most obvious among these is Electronic Arts' excellent *Marble Madness* (still, after all these years, one of my favourites), which was originally designed around the trackerball.

First up is the FT-100 from HB Marketing, originally developed for use on the PC. This rather nice looking unit sits snugly at the side of your keyboard, and provides three control buttons that replace both mouse buttons.

The FT-100 also includes a very nifty latching mechanism, which (once selected) allows the left mouse button to be set as if it is effectively held down

permanently – another click of the button and the latch is turned off. This feature can be particularly useful when working with the Workbench, as windows can be resized and dragged with ease.

Next up is the old Atari favourite from Hard Edge Communications. This unit has been available for the Atari ST for just over a year now and has gone down relatively well among Atari owners. Although Hard Edge's unit can also be utilized as a mouse replacement, it comes into its own when used with games software.

For more information about either of these units, contact either HB Marketing on 0895 444433 or Hard Edge Communications on 0742 665719.

Jason Holborn

DESIGNER SOFTWARE

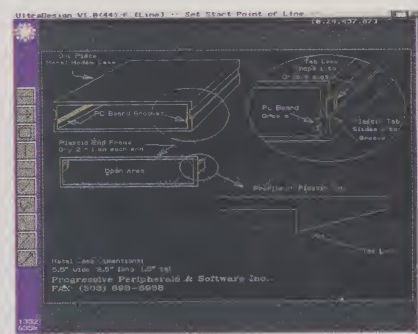
The world of CAD is a tough nut to crack for low-end machines. While the Atari ST has failed completely to be taken seriously as a contender in the CAD market, the Amiga is doing rather nicely, thank you.

This success can be attributed to a software package that has single-handedly done more to promote the Amiga as a professional CAD workstation – CADVisions' X-CAD Professional.

Following on from the Amiga philosophy of 'power without the price' (OK, so Atari coined the expression, but it's more suited to the Amiga anyway), X-CAD provided true CAD workstation power without a CAD workstation price.

Even in its first release, X-CAD managed to leave the competition for dead on both the Amiga and on its nearest CAD rival, the PC. With a redraw rate that was eight times faster than AutoCAD running on a 386 PC, X-CAD took the Amiga CAD world by storm.

Latest arrival on the Amiga CAD scene is *UltraDesign*, from Progressive Peripherals & Software (the company responsible for PIXmate and the Marcam Frame Grabber). *UltraDesign* is a professional CAD system designed to run on all 1Mb



• *Ultradesign*: goes farther than the rest

Amigas and it provides many advanced features to suit the needs of even the most demanding of designers.

Features include drawing tools for multiple lines, arrowheads, arcs, ellipses & boxes, automatic line generation, razor lines, rubber banding and fillets. Text support includes 18 fonts with user-definable size, aspect ratio and slant, text rotation, reversing, flipping, inverting, editing and styling. If things start to slow down when a large number of text characters onscreen, *UltraDesign* includes a custom QTEXT module that turbocharges text rendering.

Layers are all important within a CAD system, and thankfully *UltraDesign* certainly isn't starved of features to handle them. For starters, up to 65,535 different

layers can be defined (which should be more than enough for most).

Layers can be added, deleted, renamed, merged, coloured, etc. Other features include linear units, precision drawing tools, extensive object manipulation (copy, move, scale, rotate, etc), hatching and filling.

This is where most CAD systems would stop, but *UltraDesign* goes on. Most important is the ability to directly read and write AutoCAD DXF drawings as well as Aegis Draw, IntroCAD, HPGL and DXY files. Drawings can be pasted up and printed using either standard preference printers or, for the highest possible output resolution, in Postscript format (both normal and encapsulated).

UltraDesign is handled by Marcam Limited: phone 01-941 6117.

TYPHOON THOMPSON



Domark • £24.99

Every so often, a game appears that is so silly that it screams for attention. *Typhoon Thompson* is one such game.

The plot is serious enough, revolving around a lost passenger starship last seen near the planet Aguar. Reconnaissance missions have revealed that the only survivor is a toddler, who is now being held captive by the mischievous sea sprites.

You play the heroic Typhoon Thompson, a somewhat reluctant hero who has been pressured into taking the mission to rescue the child. To do so, you must shoot the sprites out of their hovering flyers and collect them from the water before they can swim back to their islands. Once all the sprites from a village have been caught, they can be traded for one of the four artifacts



needed to release the baby.

You are not completely alone however, since the planet Aguar has a strange race known as the Spirit Guardians, who look after the good and helpless. They reverse the 'Sea-Child' (as they call the baby) and offer you magic to help you defeat the sprites.

The Aguarians supply you with the ability to regenerate your dead body a limited number of times as well as giving you additional weapons for use when the sprites become more difficult to defeat.

Throughout the game, Typhoon Thompson gets into

humorous situations. The captain of the rescue mission doesn't take kindly to Thompson trying to chicken out of the quest, and the sprites get into rather a strop when you win!

Add to the entertaining animations and humour some simple, but involving, gameplay and you come up with a deceptively-playable and infuriatingly-addictive cartoon action number in a similar vein to many of those scintillating early Broderbund classics.

In the final analysis then Typhoon Thompson is not to be missed!

Maff Evans

Dowling

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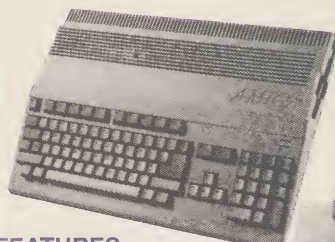
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SPECTRUM

MORE SAM

The Miles Gordon Technology SAM Coupé has already been out for a month or so and already it seems to be building up an enthusiastic base of owners, many of whom have written to me to praise the machine.

MGT isn't relaxing now that the machine is finally on to people's MFI Computer Workstations, either. The company has lots more complementary hardware ready for release.

One up-and-coming piece that has passed through design and manufacturing is a nifty 'add-on' box. MGT says this will allow third-party developers to use the SAM expansion connector.

Indeed, the first two products to make use of this box are available and ready to expand the Coupé's horizons. They're the SAM External Drive Interface, which includes a parallel printer port, and a Communications Interface.

Each of these products is available for the price of £34.50. Phone MGT on 0792 791100 for more details.

Staying with the SAM, a public spirited chap by the name of Graeme Robertson has been busily testing his extensive software collection, and he tells me the following titles are definitely compatible with the Coupé: *Manic Miner*, *Penetrator*, *Obliterator*, *New Zealand Story*, *Bosconian '87*, *Hacker 2*, *Dan Dare*, *Fantasy World Dizzy*, *Olli & Lissa 3*, *Intensity*, *Renegade 3*, *Last Duel*, *Olli & Lissa*, *Hotshot*, *Netherworld*, *Vindicators*, *Northstar*, *Chain Reaction*, *American Turbo King*, *Dynamic Duo*, *Vectorball*, *Captain Fizz*, *Aliens*, *Gun Runner*, *Space Harrier 2*, *Jumping Jack* and *Enlightenment* — *Druid II*.

MORE GOLD

Not content to lie back and count the mounds of gold from its CD Games Pack venture, CodeMasters is working hard to keep up its traditional business of churning out well-programmed budget games with dodgy titles.

Super Dragon Slayer is the latest result of the CodeMasters' budget-game-dodgy-title-devising department and — unusually for a cheapo — offers multi-load levels and a choice of games.

Disappointingly though, the gameplay is decidedly run-of-the-mill stuff and basically entails guiding the rather weedy looking hero of the piece through four 'magical wastelands'. Naturally, each level is thick with monster types that need lightning bolts between the eyes.

You can also pick up spell books and there are a total of five different types of spells to cast, but in the end it boils down to a wholly-unsatisfying experience with colour clash approaching psychedelic levels.

Much better in my opinion is another new CodeMaster's release — *Italian Super Car*. This is a plan-view driving game with an original concept, and it is not often you see one of those.

The object is to race your Italian sportscar through minefields, past other cars and over the jumps all found on a film set. There's also a tight time limit and you've only got three takes in which to complete each scene.

The graphics are functional rather than snazzy, but it's good fun to play and I'll admit to a minor bout of addiction. All in all, more fun than owning a Reliant Robin and, at £2.99, cheaper.

Robin Alway

THE COMPANY STRIKES BACK

If there's one software company that we Speccy owners hold dear to our hearts, and carry a picture of in our wallets, it's Hewson. Over the years this firm has produced a constant stream of highly-original and everlastingly-playable games.

This knack for brilliance has built the company a formidable reputation which is why *4th Dimension*, a compilation of four previously unreleased Hewson games, is such a huge disappointment. The four games aren't completely useless, but by Hewson's previous record, look like budget fodder.

For more details and a full verdict purchase the next super soaraway issue of *Your Sinclair*, due in the shops on March 18 and, as it's now a Future publication, you can purchase without feeling disloyal.

Incentive Software's *Driller* may be getting a little frayed around the edges nowadays but Robert J Baker, of London, is pretty sure a complete solution has yet to appear in print and so hoisted me over a fully comprehensive guide for finishing the thing once and for all.

However, owing to the cramped confines of this column and the shortage of mature Scandinavian pine forests at the moment, I find myself unable to include the whole darned playing guide in its entirety. Instead, here are Robert's *Multiface* pokes for the game plus the solution to the very last sector. Robert's reward for this mammoth feat of tipping is a free budget game.

48246,0 Infinite shield
47926,0 plus 49022,0 and 49425,0 Infinite energy
47896,0 Infinite time

There are seven switches in *Trachyte*; the five in the frame before you plus one in the floor and a proximity switch which detects your movements. Move until the left middle and bottom switches are showing, then switch to *Attack Mode* and shoot in the following order: bottom, middle, right, floor. Do this correctly and the frame disappears.

Having done that, you have a force field to get through. It has a blind spot; drive along X=6282. The 18th rig can, in fact, be placed in any sector but only in *Trachyte* will you get the end game sequence in all its glory. The drilling point is 4103,6559 facing the rear wall.



PCW

BURNS UNIT

Recently a lot of PCW owners have been worried about leaving their machines on for long periods of time. This is actually what you ought to do — switching the unit on and off repeatedly doesn't do the electronics much good because of the constant surges of power.

Good PCW practice dictates that you switch the thing on in the morning and off at night, without worrying about stretches of a few hours in between when it's not used (it only consumes as much power as a light bulb).

However, leaving the screen on can cause damage after very long periods. Look at a monitor on a BR platform and you'll see constantly displayed phrases 'burned in' to the screen permanently in black (phrases such as 'We apologise for the delay of this train', etc).

There isn't much you can do about this in *LocoScript*, but if you work in CP/M this BASIC listing will blank the screen until the next key press. Save it as BLANK and to blank the screen type:

```
BASIC BLANK[RETURN].
10 OUT 248,8 : A$=INPUT$(1)
20 OUT 248,7 : SYSTEM
```

A TIP THAT COUNTS

Man has an obsession with numbering things: Ten Commandments, Seven Steps to Heaven, Birmingham Six, Fabulous Four, Fifth Dimension, Chiltern Hundreds, etc. And in case you haven't guessed, you can have *LocoMail* number things for you automatically — ideal for references or lists of items.

At the beginning put the command (+Mail) F=0 (-Mail). Then every time you want a number put (+Mail) +F (-Mail), adding (+Bold) (+Super) before and (-Bold) (-Super) after if you want them to appear as superscripts.

'Fill' the completed document and *LocoMail* numbers the +Fs in sequence. So no mistakes caused by your missing out a reference or putting the same thing twice or misnumbering; and no problem if you realise you've missed one out. Just insert another +F at the appropriate point and re-fill.

B#, C?

English composer William Walton was once held up for eight months while writing his oratorio *Belshazzar's Feast* because he couldn't decide what note should go with the word 'gold'. And he never had a PCW.

The astonishing music package *The Composer's Pen* — which lets you prepare and print out musical scores to professional standard very quickly and easily, unless you get stuck on words like 'gold' — is now available in a version that takes full advantage of those lucky enough to own 24-pin printers. So now you can be sharp, see? (Actually B sharp is not C, strictly, but they are enharmonically equivalent). Details from Composit, that can be reached on 021-456 1967.

PATHETIC JOKE!

Been watching *A Sense of Guilt* on the BBC recently? Unfaithful old rascal Felix, played by Trevor Eve, has a PCW. Perhaps this is something to do with a CAD package. What do you think?

Rob Ainsley



MSX

A FOREIGN AFFAIR

I have been lucky enough to purchase a copy (second-hand) of Turbo 5000, the Universal Cartridge for the MSX 1 and 2 computers, and I thought that you might be interested to learn about some of its more useful features.

This device is on ROM, and was originally distributed in the UK by Robtek of Holland, although it seems that it is no longer available here, apart from second-hand that is — so a trip to the continent may be needed if you wish to purchase this device.

To use the cartridge, slot it into one of the MSX cartridge ports, turn on the power, and a brief message tells you that it is resident in memory. Function key 2 enables you to Call Turbo, after which a menu will appear, and you can access some of the many functions of this cartridge.

Firstly, you can make a hardcopy of all active screens 0 to 8 and use any MSX-, Epson- or IBM-compatible printer to print out text screens 0 and 1.

Next, we have a Turbo Load feature, to speed up saving and loading. Tape to tape, tape to disk, and disk to disk backups can be made and along with a directory of programs — all addresses being displayed. Deleted disk files can be recovered just by loading the disk and typing in the file name.

Turbo 5000 also has full disk handling routines and can read all hex and ASCII sectors including format info, boot sector and hidden files. MSX-DOS can be called up from the program, even if you do not start up with DOS.

As you can see, this device looks to be a useful piece of kit. The cartridge is supplied with a well-written manual and seems at first glance an easy device to use. If only life were that simple.

Even now I am still trying to get to grips with all its features and I find that some programs will not back up, even using memory shifts, etc.

Perseverance, as always, is the order of the day with *Turbo 5000*, and eventually you will most likely find that it is a useful and capable device and well worth seeking out.

STORMING LETTERS

I have had a flood of mail recently, some from MSX users requesting a list of MSX software retailers, and many cards replying to the competition in which I asked you to name the 12 games that Kixx produce for the MSX.

As many of you have already pointed out, there are, in fact, 13 Kixx games available, and 14 if you count the soon-to-be-released *Indiana Jones and the Last Crusade*.

Anyone who has already replied to this competition, never fear, if you have named 12 of the 14 titles you will be included in the draw.

The result of the competition will be published in two weeks' time, so if you want to enter, send in a card to Express pronto. There will be two winners.

The first prize is to be a copy of Sub Logic's *Flight Simulator* and *Torpedo Attack*, kindly donated by Capri Marketing of Marlowe, Bucks and the second prize will be US Gold's *Chicago '30s*, donated by yours truly.

Keith Neal



CPC

A TRIUMPH OF REASON

I've received a letter from Simon Lee, of Newcastle upon Tyne, who's got a few words to say about the 464 versus 6128 debate.

"I'm sure most CPC users have heard the phrase, 'My 6128's better than your 464', but really all we're doing is arguing among ourselves. Shouldn't we instead be 'united'? After all, we are all Amstrad users.

"But what would be the consequences of dropping the 464? Well, the 464 serves as a low-cost entry into the computer world, as not all of us can afford a 6128 straight away. If we didn't have this low-cost entry, surely the Spectrums and Commodores would take over – well, almost! The 6128 is, after all, slightly expensive.

"I'm glad that, over Christmas, Amstrad realised the potential of the CPC. But what on earth possessed Amstrad to advertise the Spectrum on television but the CPC in the press? I'm sure that the CPC is about a thousand years ahead of the Spectrum in terms of sound and graphics.

"Anyway, on the subject of the 464/6128 'divide'. What if Amstrad dropped the 6128? As most users know, the 6128 can be used for almost anything from running a small business to controlling a space station (well, on the same lines, anyway) and will continue to be used as it has excellent business software and word processors available for it. But to put it in simpler terms, the 464 needs the 6128 to survive and the 6128 needs the 464 to survive. In my opinion, anyway."

A very good point Simon. I think the two machines do need each other. Most unusual of all, though, is hearing from someone who rates both machines. Is it my imagination, or is there just a hint of snobbery about owning a 6128? You know where to write to.

DOCTOR DOOM'S DAY

The time has come for all you comic-readers to come clean. No, I'm not talking about the blooming Beano, either. I mean proper comics, Marvel-style.

Marvel comics is the inspiration for the latest release from Empire. Called *Dr Doom's Revenge*, it features the exploits of a dynamic duo of a different nature. Captain America and Spiderman are our heroes, and they're up against the demonic Doctor Doom and his legions of heinous henchmen.

The plot is a simple one. Doctor Doom has made off with a horribly-destructive thermonuclear device, but Captain America and Spiderman have traced him to his castle headquarters. It's now

464 REVIVAL?

Of course, the whole debate about which machine is the best may take – probably will take – a different turn when the new, enhanced CPCs come out in September. If our information is correct, and the next machines do incorporate cartridge ports, then all of a sudden there's going to be little to choose – at least for games players – between the 464 and 6128.

Both will give near instantaneous loading and – perhaps more importantly – the extra 64K of RAM that the 6128 has will make no difference, since both machines will only need a small workspace in RAM to run the software.

It could, in fact, be a new beginning for the 464, at a time when most people were predicting nothing for the 464, nothing, that is, but the mighty chop!

JOE BLADE POKE

Joe Blade 3 – what a game! (What, a game?) If you're still having trouble wiping out the bad guys, here's an infinite-energy and infinite-ammo poke:

```
{HsAp} 1 'joe blade 3
{FrAj} 2 '
{DvAt} 3 'infinite energy + ammo
{FtAj} 4 '
{NrAs} 10 DATA 21,fa,ac,36,c3,23
{HkAt} 20 DATA 36,0e,23,36,be,c3
{AsAr} 30 DATA 00,ac,c4,14,ac,3e
{IiAt} 40 DATA c9,32,57,0f,fb,c9
{JwAs} 50 DATA 21,7f,41,36,8f,21
{EwAt} 60 DATA cc,41,36,b3,21,2c
{HxAt} 70 DATA 42,36,f9,c3,05,40
{MLAq} 80 MEMORY &3000:y=0
{FnAs} 90 FOR x=&BE00 TO &BE29
{NtAt} 100 READ a$:a=VAL("&"a$)
{KiAt} 110 POKE x,a:y=y+a:NEXT
{JjAu} 120 IF y<&1117 THEN 150
{HwAm} 130 LOAD""
{MtAp} 140 CALL &BE18
{OvAq} 150 PRINT"data error!"
```

Rod Lawton



• *Dr Doom's Revenge*: excellent between-level screens and plenty of action.



C64

YOU BETTER YOU BET

Fancy winning a fortune on the football pools – trotting down to the local betting shop and finding the six horses that will transform themselves into a winning accumulator? Chance would be a fine thing then.

Still, there are companies around who are producing software for the C64 which is designed to help you achieve your goal of immense wealth. If the software was that good, surely the program designers would use it just the once and become instant millionaires?

Ours is not to reason why, ours is to write to Boxoft and acquire further details. It can be found residing at 65 Allans Meadow, Neston, South Wirral L64 9SQ.

CHEAPER THAN EVER

Some of you may have been thinking of adding the Oceanic disk drive to your C64 system. Some of you may already have done so, but if it was for a brand new drive, then I'll be willing to bet (I seem to have betting on the brain this week) that you paid more than a round £104.95 for it.

That is the price being asked for by Microsnips, and included in that sum is postage and packing. The disk drives have a lot to recommend them, being smaller, faster and quieter than Commodore's own range of 5.25-inch drives. And, of course, they are cheaper.

For full details write to Microsnips at 37 Seaview Road, Wallasey, Merseyside L45 4QN. Or if you fancy a chat over the telephone, why not give them a call on 051-630 3013?

A LITTLE COMMENTARY

Companies that acquire the rights to produce computer games based on the exploits of such legendary figures as Batman and Indiana Jones obviously have to recoup their financial outlay.

Companies that acquire the rights to produce C64 versions of popular coin-op games equally obviously have to do the same. Wouldn't it be nice (to coin a song) if we had original ideas for a fiver or less rather than what are sometimes pretty dodgy tie-ins and copies for a tanner or more? What do you think? Seen the awful *Beverly Hills Cop* yet?

POKES FOR NOTHING

Players of *Turbo Out Run*, which is currently coining plenty of gold for its suppliers, can treat themselves to unlimited time on the disk version with the following cartridge pokes.

The pokes! For load 1, POKE 16034,173. For load 2, POKE 16005,173. For load 3, POKE 16034,173. Last, but not least, for load 4 you'll have to POKE 16060,173.

GAME FOR ADVENTURE

Scapeghost from Level 9 seems to be going down well, so for a little ghostly help you might care to keep following Joe Danby, push the urn when you're strong enough in order to impress David Ridge, remember that Violent Conway is blind not deaf and recruit the Colonel by making the vandals think that there's a night watchman roaming about.

Pete Gerrard

YOUR FORMAT

PC

10

ST

12

Amiga

14

Spectrum

16

PCW

16

MSX

16

CPC

17

C64

17

Atari XE

18

QL

18

Archimedes

18

BBC

18



ITALIAN QL USERS

There was an Italian QL users meeting that took place last September, but details have just now made it into the QUANTA newsletter.

SPEM Proprietor, Guido Masoero, announced a new hard disk system, similar to the Miracle unit. It's about seven times faster than a floppy disk.

Giuseppe Zanetti has developed a DTP program, claimed to be powerful and suitable for unexpanded machines.

Romaldo Parodi showed his expansion card, giving an additional 192K of EPROM/RAM, with battery back-up for the RAM. It can be used in conjunction with a 512K RAM expansion. Programs can be stored in the RAM, avoiding the need for an EPROM programmer.

Roberto Innocenti has discovered a way to get more colours (up to 32), without stippling, in Mode 4!

Augusto Delsante demonstrated his QL film animation program. Using the SPEM video digitiser to capture images stored on a VCR, he is able to animate them at 25 frames per second - TV speed. The program requires a 640K QL and about 10 sequences are available, lasting up to 3.5 seconds.

QL PROLOG

Following the launch of the QL, Sinclair was very interested in putting PROLOG on it. PROLOG (PROgramming in LOGic) is the language often used for so-called

artificial intelligence applications like 'Expert Systems'.

The project never went ahead, but Hans Lub, of Utrecht in Holland, has developed his own version of a PROLOG interpreter for the QL, based on the standard implementation.

He wrote most of the interpreter in C, with the critical portion matching questions against rules and facts, and coded in assembly language to create the maximum speed.

John Torofex

QUANTA SUBGROUPS

QUANTA, the QL user group, has spawned a number of local subgroups, information about which I've published from time to time. Here is the latest listing that includes several new ones. You don't have to belong to QUANTA to join one of these groups.

Berks, Alex Waye, 0235 833284
Birmingham, Bedford White, 021-708 2560
Bristol, Chris Gregory, 0272 513653
Bucks, Alex Waye, 0235 833284
Devon, Roy Johnson, 0395 275290
East Anglia, George Katsoulis, 0842 753843
Essex, Trevor Watson, 01-592 5928
Leicester, Peter Ash, 0533 766857
Merseyside, Don James, 051-652 7366
Mid-Anglia, Peter Rowell, 0954 210692
Mid-Cheshire, Alex Robertson, 0270 500565
Northampton, Terry Harman, 0604 842875
Oxon, Alex Waye, 0235 833284
Solent, Graham Evans, 042121 3350
Wilts, Alex Waye, 0235 833284



SOUNDING OFF

BBCs have long been used by semi-professionals, musicians and educationalists as musical tools, partly, of course, because of their cheapness, availability and excellent interfaces. Much of the credit, however, must go to Ample, a full-featured music programming language pioneered by Hybrid Technology.

As a standard in its own right, many programs exist that take advantage of Ample's basic structure to transform the musical output of your BBC. One such is Basic Music Composition from Tobin Music. Derived from the Tobin Music System, a well-known musical literacy course developed over the last 25 years, Basic Music Composition is intended to teach good habits from an early age.

This reviewer is, unfortunately, too old for many new good habits, but I was certainly pleased to discover even my feeble efforts made tuneful by the program. There is the nub of the issue - it won't let you make 'mistakes', but at the same time does not limit your creativity, either.

In a classroom, used as part of the curriculum, this approach is ideal, but it may not suit the budding Beethovens among you. Overall Basic Music Composition is a workmanlike, if unspectacular, package that includes everything needed in the classroom, including Econet and Music 5000 system compatibility. And that is it for the moment, fur-

ther thoughts will follow if (and when) Music 5000 Universal becomes available for review.

A PEAK OF THE DECADE

Most exciting news of the decade (so far) for BBC games fans, and, let's face it, that means everyone, is the impending conversion of Sim City, the mega game from Infogrames.

For those who don't read the games magazines, Sim City gives you the chance to play at being city fathers (or mothers). You must build up your city from humble beginnings, building roads and hospitals and overcoming disasters both natural and man-made.

The great strength of Sim City is its graphical interface - so it will be fascinating to see if Superior Software's wizard programmer, Peter Scott, can pull off the feat by recreating it on the BBC. Don't hold your breath though, as summer is likely to arrive before Sim City.

Much nearer completion is the conversion of Hostages, another Infogrames classic. My knowledge of this is even sketchier than Sim City, but I do know that action and strategy are mixed up in this simulation/arcade game. Again, as Peter Scott is in charge of the coding and, knowing his legendary finishing speed, I expect to be reviewing the game in full within the next few weeks.

Superior deserves congratulations for forging links with such an illustrious software house from the 16-bit world. With Steve Hanson reporting an excellent working relationship, it could develop into something that lasts, too.

Andrew Brown



ON THE AIR

I've spent a happy week exploring the arena of Atari 8-bit communications, huddled over a keyboard and modem with only the phosphorescent glow of the monitor to light the darkness. Let me whet your appetite with fruit of my labours - that is provide for you a description of the best BBS (bulletin board service) in the UK.

Comms - isn't that the domain of the 16-biters? That's what I thought until I discovered The City, an incredible bulletin board devoted to all things 8-bit.

A bulletin board is a computer version of the pin board you have at work or school. Users can call up the board, leave messages, exchange software and generally interact with other 8-biters.

The City is a BB based in Birmingham, run on and supporting the Atari 8-bit. Unlike most bulletin boards however, the layout and configuration of The City is decided by its residents!

The City is organised just like a real city. When first you dial the board, you're given the status of visitor. You can have a look around, leave a message or two, but your actions are limited.

With resident status, the fun begins. Once a resident, you can create areas within the City and mould the BB to your own specification. You can rise from Resident through Guardian to Sentinel and the entire board will be layed bare to your excesses - more next time.

Meanwhile, for initiated comms users, enter The City, by phoning 021-353 5486, 8N1, V21/V23 24 hours per day.

Edmund Blake



DOS TO RISCOS

Further to the file transfer feature in Express 68, I've recently seen the !PCdir utility working on an Arc. This is a useful little routine as it gives you extra drive icons in the icon bar, labelled A:, B: and so on.

These icons can be clicked on like any other, but the drives will then read and write MS-DOS disks rather than Arc ones. With this utility you can transfer data to and from PC disks with ease and even copy files from one MS-DOS disk to another, though you can't currently format DOS disks on the Arc.

What a worthwhile utility, but only one of several on Careware disk 4 from Norwich Computer Services. Careware is akin to shareware, but £6 of the £7 cost is later donated to charity. Nice to think you can do something for a good cause while picking up worthwhile software at a decent price.

And nice to think there are enough philanthropic programmers out there to make the concept possible. Norwich Computer Services, which also publishes Archive, its user group newsletter, is on 0603 507057.

GIVE US A HINT

In the geriatric but comfortably-off PC world a lot of fuss is being made about the DTP page description language PostScript and Adobe's Type 1 hinted fonts. Rival companies which also publish fonts maintain that Adobe's hinting is rubbish, anyway.

All Acorn's Arc fonts are hinted, as are several of the third-party fonts available, including The Font Foundry's mentioned last week (about which more next week).

What is hinting, anyway? When using scalable fonts the characters are produced from a series of mathematically-defined lines and curves.

As you scale the characters down, the lines of which they're composed get thinner and thinner. There comes a point when some lines will be so thin that they will disappear on a comparatively low resolution device like a laser printer. This is particularly true of serifs on fonts below 10 points in size.

Hinting forces any line thinner than a printed dot (one three hundredth of an inch on a typical laser) to be rounded up to one dot thickness. This ensures that parts of characters don't disappear and gives a better appearance to the characters, at the expense of true accuracy to the form of the character.

The other kind of hinting, which is related to the first, is to do with the place a given character falls on the matrix of dots in a printer.

There are occasions when, for instance, the two legs of an 'H' may fall unevenly within the matrix, so that one leg falls on a line of dots while another falls between two lines. This can lead to an uneven character form. Hinting ensures that all the legs or uprights of a character are printed with the same width.

Glad you asked?

Bertrum Carrot

MODE WORKS

The way an Arc is configured, you might very well have come to think that there were only two screen modes available, numbered 12 and 15 (all right, and 21 if you've a multisync monitor). In fact, of course, there are quite a few more.

One of my own favourites is mode 17. This is particularly handy as you can display it on a standard Acorn-type monitor - though at the limit of its resolution. Mode 17 is 1,056 pixels horizontally by 256 vertically.

The big advantage is that you can display a lot more on the screen. The icon bar, for instance can take more application icons, and you can open more windows of usable size.

A friend of mine - the one who boots up with the 440 and all the trimmings - runs his Arc in this mode when using Acorn DTP. He can also keep a file directory open at the top of the screen for multi-tasking a text editor, art package or whatever.

This option runs with a full-page window in the DTP open. Ultimately, however, this manner of operating is only comfortable long term on a multisync, while ideal for desktop work on virtually any screen. Further, to change modes, run the Configure application or press [F12] and enter *Configure WimpMode nn, where nn is the mode number.

520ST-FM SUPER PACK



The Atari Super Pack is ideal for you if you want to get off to a flying start with the best in entertainment software. The Pack includes a 520ST-FM with 1Mb RAM, a built-in 1Mb disk drive, over £450 of top games and a joystick. If you buy the Super Pack at Silica Shop, we will add our own ST Starter Kit (worth over £200), Free Of Charge. Return the coupon for details.

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All prices correct at the time of going to press. £80C

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INCLUDING VAT

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DTP ☐

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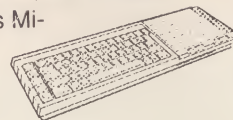
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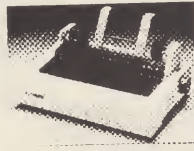
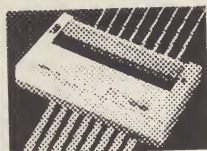
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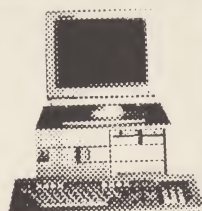
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THE SHOPPING EXPRESS BUYERS' GUIDE TO PRINTERS, MODEMS & PORTABLES

The first peripheral most people buy is a printer – a word processor is pretty useless without one! Here we present the Express guide to dot-matrix printers, together with some advice on portables and modems

PRINTERS

Every computer owner needs a printer. From the largest corporate business to the smallest home user the time will come when you need more than what's shown on screen, you'll need hard copy.

● **AMSTRAD DMP4000**
0279 454555
£349
9-pin • 200cps draft 50cps NLQ •
8K buffer • Epson compatible

Bottom of the usable range Amstrad printer, which is unsophisticated, provides only adequate printing quality and which is expensive when compared with similarly-specified machines from other manufacturers. The device is both Epson and IBM compatible.

Power ★★★

Value for money ★★

● **AMSTRAD LQ3500**
0279 454555
£349
24-pin • 160cps draft 54cps NLQ •
8K buffer • Epson compatible

Amstrad's weird and wonderful pricing structure has ensured that this 24-pin printer offering roughly similar specifications to the DMP400 but a vastly improved print quality is the same price – and you can find good discount deals. 160cps draft speed for a 24-pin dot matrix machine is outrageously slow and the 8K buffer doesn't excite thrills of desire.

Power ★★

Value for money ★★

● **AMSTRAD LQ5000**
0279 454555
£449
24-pin • 288cps draft 96cps NLQ •
8K buffer • Epson compatible

One of the best from the Amstrad stable. Featuring reasonable print speeds, a wide carriage and built in tractor feed as standard, the machine is worthy of consideration by small business persons.

Power ★★

Value for money ★★★

● **BROTHER 1109**
061-330 6531
£195
9-pin • 100cps draft 20cps NLQ •
No buffer • Epson compatible

Expensive, underspecified printer from well-known manufacturer Brother who really needs to try harder. Almost £200 for a printer which doesn't have a printer buffer indeed!

Power ★

Value for money ★

● **BULL COMPUPRINT 4/20**

01-568 9191
From £440
9-pin • 200cps draft 40cps NLQ •
7K buffer • Not Epson compatible

Available in a choice of carriage widths and optional serial or parallel interface, the Bull machine is an incredibly expensive, deathly ordinary dot matrix with little to recommend it. Unless you're a corporate buyer with the name Bull indelibly marked on your purchasing order forms, look elsewhere....

Power ★★★

Value for money ★

● **CITIZEN HQP-40**
0895 72621
£499
24-pin • 200cps draft 66cps NLQ •
No buffer • Epson compatible

Citizen have been in the printer business for a number of years and although some of the company's early machines were a little strange, the latest printers are worthy of consideration. The HQP-40 is a fairly expensive, but well made 24-pin printer – but the lack of print buffer should be noted.

Power ★★★

Value for money ★★

● **EPSON LX-850**
0442 61144
£279
9-pin • 180cps draft 30cps NLQ •
3K buffer

Bottom of the range Epson 9-pin machine featuring two NLQ fonts, only moderate print quality but the great name Epson on the panel.

Power ★

Value for money ★

● **EPSON EX-800**
0442 61144
£629
9-pin • 300cps draft 60cps NLQ •
8K buffer

Epson is the name in the printer world. The company whose printer control codes have been adopted as an unofficial standard by almost all other manufacturers. The company's printers are well made, available everywhere and supported by all software. However, the popularity of Epson has ensured the price of the machines has remained inflated when compared with similarly-specified machines from other manufacturers. The EX-800 is fast, and of high quality construction. A optional colour adapter is available.

Power ★★

Value for money ★★

● **EPSON LQ550**
0442 61144
£399
24-pin • 150cps draft 50cps NLQ •
No buffer

Uninspiring 24-pin mid-range printer from Epson. Four built-in letter-quality fonts, friction and tractor paper handling and good quality printing.

Power ★★★

Value for money ★★

● **EPSON FX850**
0442 61144
£459
9-pin • 264cps draft 54cps NLQ •
8K buffer

Fast but fairly expensive 9-pin machine featuring innovative cut sheet and fan fold paper handling, quality printing, and fast draft mode.

Power ★★

Value for money ★★

● **EPSON EX1000**
0442 61144
£829
9-pin • 300cps draft 60cps NLQ •
8K buffer

One of the top of the range Epson 9-pin machines which has a fast draft printing mode, but has a tendency to lose the paper feed after 20 or 30 sheets have been processed. First choice for professional programmers needing listings.

Power ★★

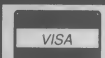
Value for money ★★

● **EPSON DFX5000**
0442 61144
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9-pin • 533cps draft 96cps
NLQ • 3K buffer

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REPAIRS FOR AMIGA AND ATARI

If you want a mega-fast printer this is your baby. At 533 characters per second in draft, this machine is the fastest of the Epson range. 96 characters in NLQ mode is fairly racing along too!

Power ★★★★★

Value for money ★

● IBM PROPRINTER III

01 747 0747

£442

9-pin • 320cps draft 65cps NLQ • 32K buffer

Fast, and with a huge print buffer and reasonable price tag (when compared with similar machines from Epson and Amstrad) the IBM is the first choice for the corporate buyer.

Power ★★★★★

Value for money ★★★★★

● IBM QUIETWRITER III

01-747 0747

£1,139

274cps draft 171cps NLQ • No buffer

Calling migraine sufferers everywhere! The Quietwriter III from IBM relies on thermal technology to provide whisper quiet operation at a fast printing speed.

Power ★★★

Value for money ★★★

● MICRO PERIPHERALS MP165+

0706 217799

£198

9-pin • 190cps draft 32cps NLQ • No buffer • Epson compatible

Bottom of usable range Micro Peripherals printer which provides reasonable print quality and speed at a moderate price. Many dealers offer large discounts.

Power ★★

Value for money ★★★★★

● MICRO PERIPHERALS MP200+

0706 217799

£299

pin • 240cps draft 40cps NLQ • buffer • Epson compatible

Fast, moderately priced printer which can accept a range of plug-in font cards ensuring the versatility of the printer. Good deals to be had.

Power ★★★

Value for money ★★★

● OLIVETTI DM250

0908 374900

£649

24-pin 180cps draft 60cps NLQ 24K buffer Epson compatible

Good quality printer from erstwhile typewriter manufacturer Olivetti. This device features a large print buffer and moderate printing speed. However, the price tag is just a little on the large side.

Power ★★

Value for money ★★

● OLIVETTI DM100/105

0908 374900

From £235

9-pin • 120cps draft 25cps NLQ • 7K buffer • Epson compatible

Unpretentious little matrix machine from Olivetti which can also be had in a colour version (DM105).

Power ★★

Value for money ★★

● PANASONIC KXP1081

0344 853915

£219

9-pin • 180cps draft 24cps NLQ • 1K buffer Epson compatible

Very popular do matrix printer from well-known manufacturer Panasonic. Reasonably specified, fully Epson compatible and available discounted at a price which will take your breath away this machine is the first choice for prospective printer purchasers with limited budgets.

Power ★★★

Value for money ★★★★★

● STAR LC10

0494 471111

£199 (mono), £259 (colour)

9-pin • 144cps draft 36cps NLQ • 4K buffer • Epson compatible

Like the Panasonic KXP1081, the LC10 from Star is a very popular, highly desirable dot matrix, featuring good specifications, full Epson compatibility and a colour option all at a breath-takingly small (discounted) price.

Power ★★

Value for money ★★★★★

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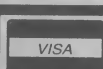
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512K RAM • Single/twin floppy
drive(s)

Amstrad has a finger in every pie and the portable PC compatible market is no exception. The entry level machine is the PPC512, featuring a full sized keyboard, but poor screen, not much memory and not much else to recommend it. Look elsewhere...

Power ★★

Value for money ★★

● AMSTRAD PPC640

0279 454555

£799

8086 CPU • LCD CGA screen •
640K RAM • Double drives • Internal
V21, V22, V22bis, V23 modem

When first launched, the media recommended the machine as being worth the price for the built-in modem alone. Although quite large and not very pretty, the Amstrad is nonetheless a very usable portable computer at a fantastically low price. Very worthy of your consideration and money.

Power ★★★★★

Value for money ★★★★★

● BULL PC AP-L

0422 212781

From £1,395

80286 CPU • 1Mb RAM • 20/40Mb
hard drive

Fast, comparatively lightweight portable from Bull, featuring a megabyte of RAM and choice of hard drives. Screen display reasonable.

Power ★★★

Value for money ★★★

● COMPAQ PORTABLE II

01-940 8860

From £2,395

80286 CPU • 640K RAM • 20Mb
hard drive • 360K floppy

Expensive, under-specified, portable from a dealer with a reputation for high quality and matching high prices. Compaq machines are rugged, but demand fat wallets.

Power ★★★

Value for money ★★

● COMPAQ PORTABLE III

01-940 8860

From £2,995

80386 CPU • 640K RAM • 20/40Mb
hard drive • 1.2Mb floppy

Mid range Compaq 386-based portable featuring a choice of drives but lacking sufficient RAM for a machine of these specifications - why cut corners? Rea-

sonable screen display and rugged construction.

Power ★★★★★

Value for money ★★

● COMPAQ PORTABLE 386

01 940 8860

From £4,695

80386 CPU • 1Mb RAM •
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Power ★★★★★

Value for money ★★★★★

● COMTECH TECH NOLOGY 286LT

0964 615100

From £1,995

80286 CPU • 1Mb RAM • 32Mb
hard drive • 1.44Mb floppy

Portable from Comtech UK with the unusual distinction of having a gas plasma rather than LCD display. Plenty of features such as high density 3.5-inch drive and 32Mb hard drive ensure the desirability of this machine.

Power ★★★★★

Value for money ★★

● EPSON PC AX

0442 61144

£2,749

80286 CPU • 640K RAM • 20Mb
hard drive

Very popular and well made portable from printer manufacturer Epson. The PC AX features a paper white monitor and is light and very portable.

Power ★★★

Value for money ★★★

● EPSON FD

0442 61144

£1,199

V30 CPU • 640K RAM • Single/twin
floppies

One of the cheaper Epson portables but still with a heavy price tag this machine features a fast V30 central processor and is available with a choice of floppy drives (also available in a hard drive 'HD' version).

Power ★★

Value for money ★★

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5 IBM MEMORY

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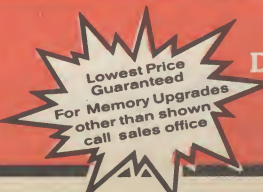
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V20 CPU • 768K RAM • Twin flop-
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unmatched outside the Amstrad stable,
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Power ★★★

Value for money ★★★★★

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disk driveThe journalist's choice. Not PC compati-
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with good word processing software
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Power ★★

Value for money ★★★★★

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80C286 CPU • 1Mb RAM • 20Mb
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V21 V23

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Power ★★

Value for money ★★★

● MIRACOM WS3000

0473 233888

£395
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High end Miracom modem popular amongst corporate users featuring the fast 2400/2400 full duplex mode, full Hayes compatibility and a full complement of indicator LEDs.

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Value for money ★★★

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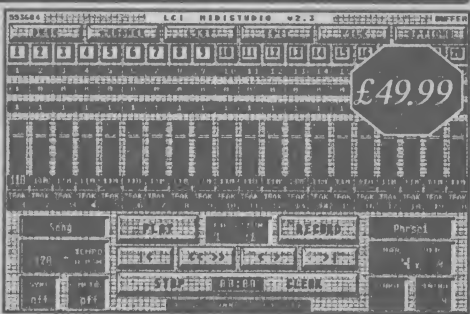
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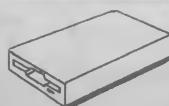
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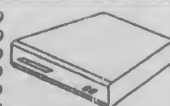
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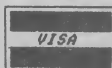
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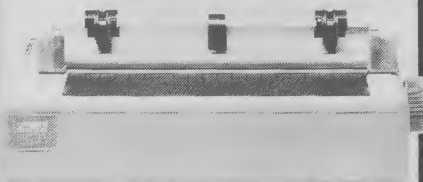
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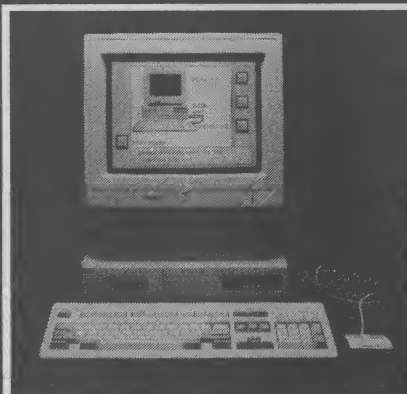
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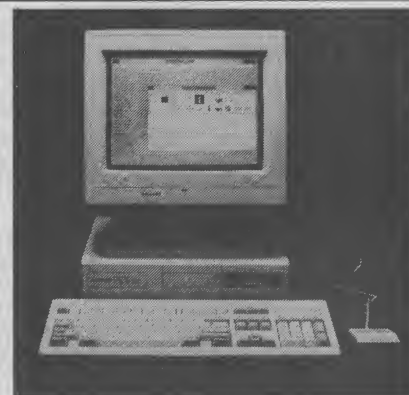
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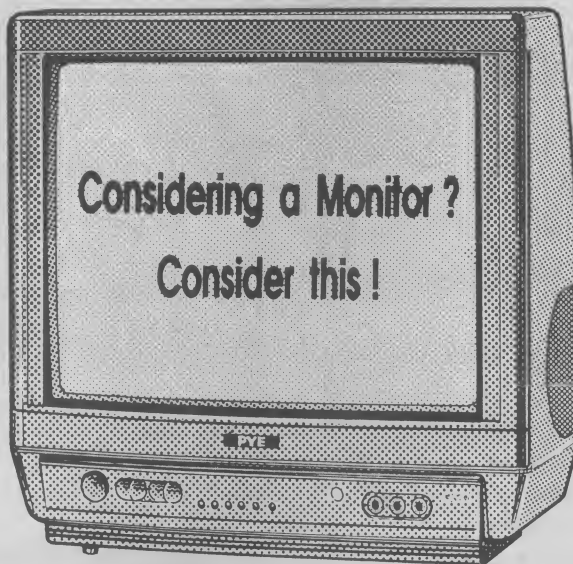
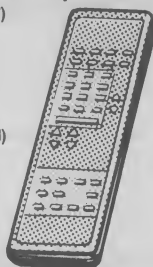
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WANTED Xectrex Cartridges. Phone Melksham 708747 between 6pm and 10pm.

WANTED PRO Tennis Tour for Amiga or ST. Contact R. Woodhead, 45 Riddings Court, Annesley Close, Hasland, Chesterfield, Derbyshire, S41 0RQ. Tel 237865. Cash or Swap.

MULTIFACE 128K wanted, must be in good condition, all offers considered, also wanted "Mutant Monty" Spectrum 48K. Write to 137/B Folkestone Road, Eastham, London, E6 4AZ.

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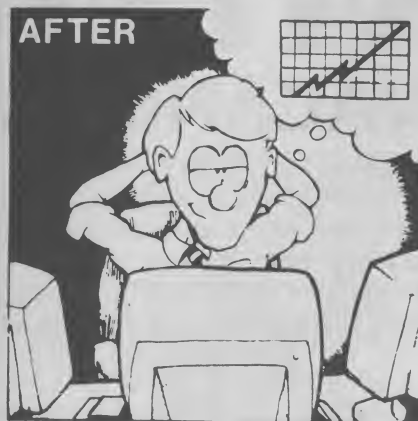
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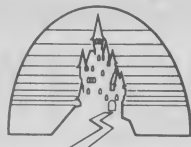
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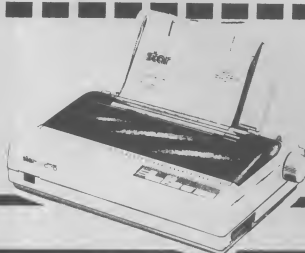
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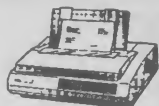
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When you decide to buy an IBM-compatible PC, one of the biggest problems can be working out how to get your all your lovely data into it – your letters, files, novels, catalogues and suchlike. You have hardware and software which can manipulate information in all sorts of clever ways, but if you can't get the data into the machine in the first place, you may as well have saved your money. After all, if a computer can't process information it's just an expensive piece of tin.

If you have never used a computer of any sort, all your data will be held on old technology media (or 'paper', as it used to be called). To get it in PC format, the simplest route is to re-type it. This can be pretty time-consuming if 10 years of card records or deathless prose need to be computerised, but the only obvious route out is to pay someone (a temping agency, say) to do the work for you. This takes you less time but costs a lot more – ultimately, the decision is yours.

If, on the other hand, your data is already held on a computer you can usually transfer it from that machine to your PC. One of the advantages of the PC's remarkable world-wide success is that methods exist for getting data to and from the PC from just about every sort of computer that has ever existed.

STANDARDS

It all comes down, once again, to standards. Throughout the computer world, the nearest there is to a hardware standard for data interchange is the RS232 port, also known as the serial interface. This is a socket on the back of most microcomputers (and an increasing number of larger machines). In theory, you should be able to plug a cable into both machines and then transfer your valuable information down it.

In practice, the RS232 port is such a vague standard, you have to be very careful about the design of your cable. The best thing to do is to tell your friendly neighbourhood dealer which machines you want to tie together and then get them to make you an appropri-

ate cable – it shouldn't cost more than about £15.

The software standard is ASCII (American Standard Code for Information Interchange), a series of 255 codes representing letters, numbers and things like carriage returns, which was described in *Express* 68. This is the lowest common denominator of micro files. It is unsophisticated – not allowing you to retain bold or italics, for example, but widely accepted in the computing fraternity.

In general, you can only transfer your data, not your programs. Each different computer uses different program instructions, and most of these are incompatible – so no, you can't get your favourite BBC word processor on to your IBM clone. However, some languages – such as BBC BASIC – are so common that versions exist for them on all sorts of computers. So yes, you can port all those schooldays listings onto the PC.

SOFTWARE

In principle, the PC can communicate with other machines without specialist software, courtesy of the MS-DOS `COPY` command. In fact, the process is so error-prone that it is best to shell out a few bob on some dedicated software. The PC standard is probably *Mirror 2*, from Softklone. However, the public ►

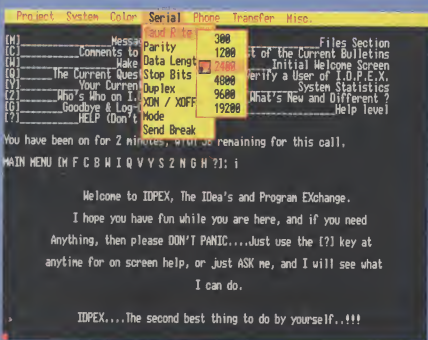
• Serial ports come with a range of sockets – make sure you buy the right lead.

MAKING THE CHANGE

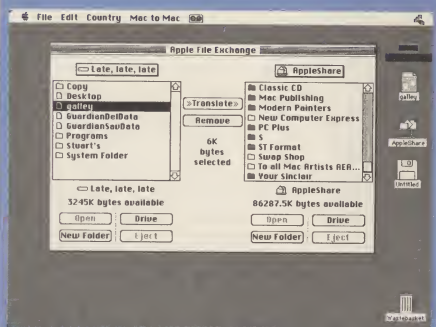
The last in the series of articles on the PC compatible family looks at ways of getting valuable data into the PC from other machines. Mike Hardaker is your guide through the jungle of serial leads...



• **Mirror 2** is probably the commonest PC file transfer program. It offers all the facilities you need for moving data between machines. Version 3 will be out soon. When choosing a program look for Kermit and X-modem compatibility.



• **Access!** is the best software file transfer package for the Amiga. It can be used for logging on to a bulletin board via a modem, or for direct file transfer with a serial cable.



• Modern Apple Macintoshes can read and write 3.5-inch PC disks with the aid of Apple File Exchange, free with every Mac. For serial file transfer, the shareware program Red Ryder offers all the facilities you need.



• **220ST** for the Atari ST allows you to use the popular X-modem protocol, which permits rapid error-free file transfer. To use this option your PC software must be similarly blessed.

domain utility *Kermit* is something of a universal standard and the shareware program *ProComm Plus* is very highly regarded and pretty inexpensive. Get one of these and you won't go far wrong.

AMIGA

An RS232 port is built in to the Commodore Amiga. Use the *Access!* program from PD libraries as your preferred software. Alternatively, *CrossDos* from Power Computing allows you to read and write MS-DOS format 720K 3.5-inch disks on the Amiga's disk drive.

ATARI ST

The ST can already read and write PC format 3.5-inch 720K disks. Alternatively – if you have 5.25-inch disks – use the PD *Uniterm* package or a professional package such as *220ST* and an RS232 cable.

APPLE MACINTOSH

The SE/30 and the later Mac IIcx and IIci machines can read PC format disks, courtesy of the *Apple File Exchange* utility which comes on the system disk. Otherwise, you can use *Red Ryder* software or the more specialised *MacLink*, together with the omnipresent RS232 cable. Alternatively, a COPYIIPC Option Board fitted in a PC will allow it to read and write Mac format 3.5-inch disks. This is pricey, but handy if a lot of transfers are involved.

ACORN / BBC B

The Beeb's RS232 port is also non-standard, based in design on a DIN plug. It is there, however, and with an appropriate cable you can tie the thing up to a PC. The *CommStar* package (which is ROM-based) is recommended for the BBC, with the PC running the comms program of your choice.

AMSTRAD PCW

You need to buy an RS232 port for about £60, as it is non-standard on the PCW – look at the ads in *Express* or specialist magazines like *8000 Plus*. The *Setsio* program on the PCW's CP/M disks should provide all you need to get going. Alternatively, try *Dialup* (from PMS Communications) or the PD alternatives if you want more function than is bundled with CP/M.

AMSTRAD CPC

Like the PCW, you have to buy the RS232 interface – Pace, Amstrad and KDS are recommended suppliers and you should expect to spend less than £50. CP/M can do the software business here too. Siren Software is shortly expected to offer a £20 utility for the CPC which will allow it to read and write MS-DOS disks – although you will need an external 3.5-inch or 5.25-inch drive on your Amstrad.

SINCLAIR QL

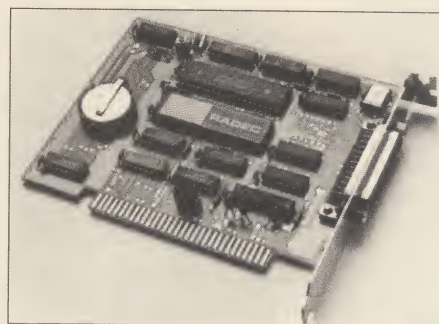
This has another non-standard RS232 port, using phone jacks this time – again, a special cable will be needed. The machine's operating system handles the communication – although *Qualsoft* is a more powerful communications package for the specialists who demand extra power. It's business as usual at the PC end of the wire.

SINCLAIR SPECTRUM

Interface 1 for the old Speccy includes an RS232 port, which is all the extra hardware you need. The Plus 2's hardware is much like the QL's, described above. For communications software, contact user groups or PD libraries for the latest information.

COMMODORE C64

Once again, you'll need to buy an RS232 interface (try Datel) for about £30. The C64 User Group is the prob-



• Before you can use a serial cable you will need a serial port. Most PCs come with one, but you can add an RS-232 socket with a board like this one.

ably the best place to try for the appropriate software – look for Kermit compatibility.

MSX

The MSX 2 can read and write 3.5-inch PC disks. Otherwise, you may or may not have to buy an RS232 interface (the Toshiba HX22 has one, other machines don't). You also may or may not have to get some software – try *Communications* for tape-based systems. Wasn't MSX supposed to be a standard?

ARCHIMEDES

PC owners who have 3.5-inch disks can use Acorn's *PC Emulator* on the Archimedes to read and write PC disks directly. If you have 5.25-inch disk drives on your PC, try Technomatic's *ArcComm* and the good ol' RS232 cable.

OTHER MACHINES

There are so many weird and wonderful micros out there, it is impossible to give notes on everything. If your old machine is still being made, ask the manufacturer what to do. If it's an olden goldie, try your dealer, or otherwise look for user groups or bulletin board Special Interest Groups. If you're desperate, find someone who will regard it as an intellectual challenge to solve your problem.

THE BUREAU ALTERNATIVE

If you are ditching your old micro, you may find the cheapest way of getting your data on to a PC is to pay someone else to do the work – check out the adverts in *Express* or look in the Yellow Pages under 'Computer Services'. Although the deal may seem pricey, it could cost less than buying extra hardware and software for on-off transfer.

If you have previously been using a computer bureau to do your data processing, you may have an impressive-looking set of eight-inch disks or big spools of tape. If this is the case, you have no option but to consult a 'data migration' expert – it's Yellow Pages time again.

BULLETIN BOARDS

If you have a modem, you can always upload the data from your old machine to a bulletin board or conferencing facility (such as CIX). You can then sign on to the board with your PC attached and download the data again. This is probably the most straightforward method of getting your data from one machine to another. It's cheap, too – as long as you don't have to pay peak-rate phone bills.

DOING IT BY HAND

If you haven't got much data, haven't got much money, but you do have lots of time, then the cheapest way of getting your information from one micro to another is just to re-type it. It's boring, gives you sore wrists and takes up all your evenings, but it is cheap. ■

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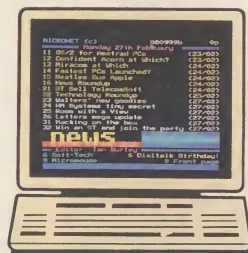
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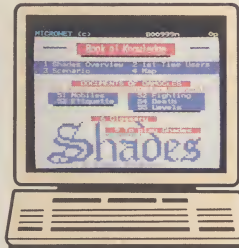


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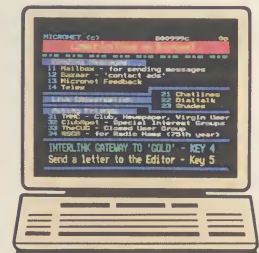
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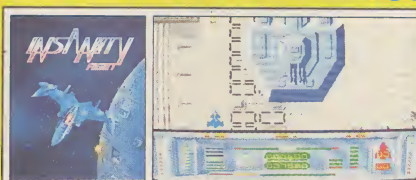
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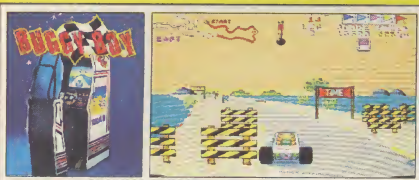
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Do you already own a computer
If so, which one do you own?

• A helium atom, holder of the lowest boiling point record. Dedication indeed.

PURE GENIUS

Andy Storer takes a spin with the latest addition to the now 2,000-strong library of CD-ROM titles – The Guinness Disc of Records.

You might be forgiven for wondering why *Express* is covering the *Guinness Disc of Records*, as it needs a Macintosh with a minimum of 1Mb of RAM and requires a CD-ROM drive. The answer is simple. This CD-ROM is a good indication of the kind of material we will see becoming available for PC, Amiga and Archimedes owners in the next year or so.

Able to hold 4,000 colour images or the equivalent of 1,500 floppy disks of data, the potential for reference sources is enormous. For instance, *Computer Library* is a single disc containing the full text of eight computer magazines over a 13-month period offering 43,000 articles with a seek time of less than 10 seconds. Were the magazines stacked on your shelves they would stretch for 63 feet! But other applications will be forthcoming too – massive games are only one of the areas which are coming to fruition now.

EXPANDING

With CD-ROM units available for as little as £350, and the catalogue of titles rapidly expanding, it's a only a matter of time before mixed media offerings become affordable. *The Guinness Disc* retails at £60 – a pitance when one considers the byte-per-pound value. For all in all there are over 120Mb of text, colour photographs, animation, music and sound effects on the five-inch disc. What's more there's a super-fast text search routine which allows you to access any subject in seconds.

Some two years in development, the disc is a faithful translation of the 6,000,000-selling book and is organised around three main subject headings – Natural, Physical and Sporting. Navigation through the vast data structure is via a *Hypercard* front-end which allows you to click on icons representing various search and retrieval criteria. *Hypercard* is ideal for this

kind of application since it's able to treat data of any form – text, animations, colour images – uniformly, and the simple click-and-play interface is ideal for the computer novice.

INNOVATIVE

The Guinness Disc is innovative as a CD-ROM because it represents the material it contains as an interactive encyclopaedia. The book format is followed pretty closely with each main category having a contents page which can merely be clicked on to advance to subsequent levels. Each contents card has an index icon that gives you the option of browsing through the pre-written indexes of What, Where and Who before clicking on a topic to find all the references to your particular choice. Likewise you can hit an icon to search for any particular word or subject across the whole of the disc.

Taking the book analogy further there's even an icon which takes you to a random position in the data as if you had just opened the real book for a lazy browse. This feature has also been extended to incorporate a random slide show of the pictures present on the disk. When you see a picture that interests you all

you have to do is click on it and you are taken to the Record associated with it.

The Record screens themselves are largely composed of scrollable text windows with the occasional animation, or photograph requiring an overlaid screen. CD-quality stereo sound accompanies most animations and some of the records relating to music and speech. Excerpts from Holst, Handel, Shostakovich and Stravinsky sit side by side with the sounds of cicadas, sonic booms and world's fastest backwards talker. Altogether there are 20 minutes of animation representing 4Mb of data, running via *Macromind Director*, and over 300 colour pictures taking up over 60Mb of the disc. ■

PAGE COUNT

The Guinness Disc comprises 120Mb of data representing 1,357 files. Of this 72Mb are taken up by colour slides and 9Mb consisting of animations and tables. The Records data itself is held in one file which is some 19Mb in size!

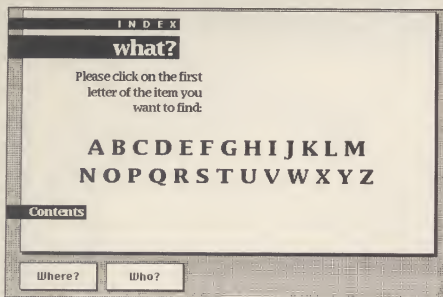
ANYONE FOR A GUINNESS?

Although there are as yet no plans to release the *Disc* for other machines, you can expect to see it appearing on the PC next as there's already a large installed user base. It would also make sense for its distributor, Mirrorsoft, to look at the educational markets centred on the Nimbus and

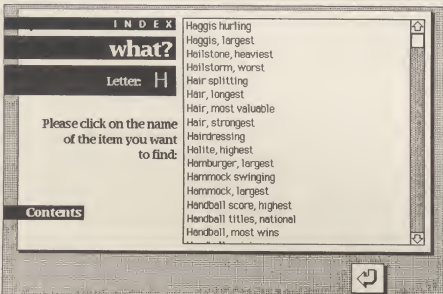
Archimedes machines as these both have CD-ROM drives. Whether this title will make it to the Amiga CD is open to question.

However, the Amiga is beginning to become well-supported in the States as a multimedia machine, indeed it's a catch phrase

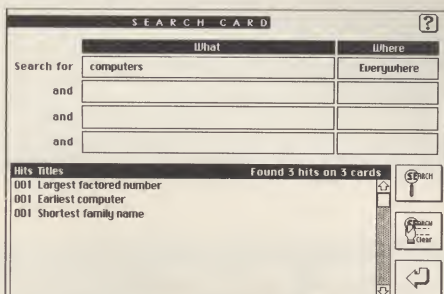
Commodore is touting as befitting the new Amiga A3000, so smart money would be on its arriving in the next year or so. After all, if the book version sold 60 million copies and all the data has been compiled for the CD version, it would seem there's money to be made.



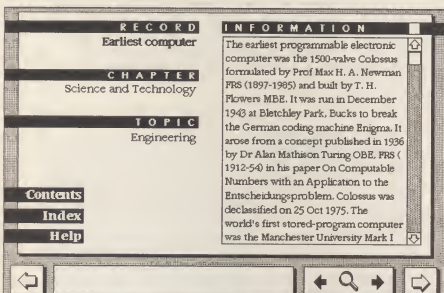
• Individual Records can be chosen alphabetically, after first having selected the category from What, Where and Who. Then the initial letter is picked.



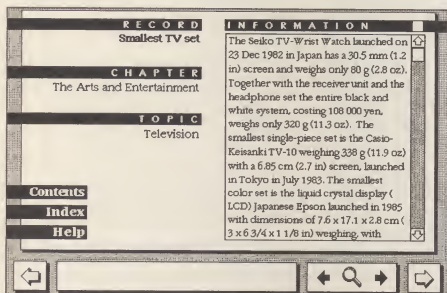
• You are then presented with a list of all the topics beginning with that letter. As you can see, the list is comprehensive enough.



• The entire disc can be searched for any keyword, which will find a reference buried deep in the text of a Record. The found records can then be flicked through.



• The Record itself is displayed on the right-hand half of the screen. The scroll bar by the side lets you read the rest of the text.



• The large arrows take you forwards and backwards through the Records. Clicking on the magnifying glass lets you do a keyword search of the record, and find other references in other files. The rest of the bottom line is used for icons indicating the presence of accompanying pictures, music or animations.



• The Guinness Disc of Records is liberally illustrated with excellent digitised colour photographs and animated presentations.

From a Record screen – such as that for the longest distance walked with a milk bottle on your head (left) – you can call up the corresponding picture (above). A slideshow lets you browse through the pictures, like this aerial shot (above left) and the planet from space (below).



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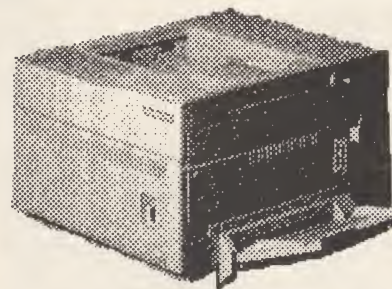
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• In smart cards the processor and accompanying units are contained in the small metallic square.



Industry sources estimate there are 250 million plastic cards in circulation in the UK, representing transactions amounting to over £3.5 billion – by far the largest market in Europe, nearly three times the number in France and Germany. So it's something of a surprise to learn that Britain has the lowest uptake of smart card technology in Europe.

A true smart card is a durable credit-card sized slice of plastic containing an embedded 8-bit microcontroller comprising of a central processing unit and some RAM, ROM and EPROM storage. Whereas your everyday banker's card only holds 1K of data on a magnetic stripe, many smarts can now hold up to 128K, with memory protected by either physical fuses or logical safeguards in the form of dedicated bits. In addition, some feature miniature keyboards, LCDs and a battery.

Communication is largely through 16 or more edge contacts that interface to a smart card reader sitting between the card and a PC, and using standard serial communications. Some more sophisticated smarts, just coming on the market, use radio frequency or inductive surfaces to transmit and receive data. The storage media, in either EPROM or EEPROM form, is structured in files allocated, retrieved and protected by the on-board operating system contained in ROM. By and large, smarts are used in areas of sensitive or secure data, so protection is afforded by either passwords or cryptographic keys.

One of the main differences between a smart and a computer is that its CPU is unique, with a serial number that can be personalised for a specific person or function. So, although a name can be printed on the

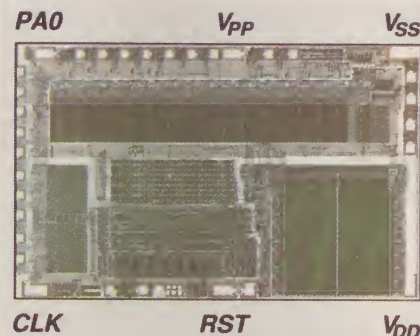
SMART MOVES

This year will see the number of smart cards in daily use in Europe tip the 20 million mark. By 1995 this figure will more than treble. Andy Storer finds out why...

card, or a picture or signature added or even digitised, security remains assured through the encoding.

With developments like Canon's re-writeable optical card holding up to 4Mb, it seems clear that, as we enter the Nineties, the dream of credit-card sized data storage will become a reality. In the meantime though, it is the security benefits offered by smart cards that are attracting most corporate interest.

Although the notion of an 'intelligent card' may be something of a misnomer, the range and type of data that can be stored leaves the smart card as a technology that is only just beginning to take off. Residents in Milton Keynes already use smarts as charge cards for transport and leisure facilities, while in Jersey their use goes beyond this to include medical records and a host of different retail outlets. It's not too difficult to envisage non-contact smarts being used in some future elec-



• The processor at the heart of a smart card – Motorola's MC6805 chip.

tronic tagging scheme similar to the recently scrapped venture to monitor football supporters.

In that instance, it was the time taken to process data, rather than the perceived need to process it, that led to its demise. With radio-wave readers, the technology would enable such legislation to proceed. ■

SUPER SMARTS

Austrian manufacturer ELIS has a smart that can be read and written to at a distance while in motion using radio communications. As it can be supplied in various shapes including credit cards, dog tags and buttons it's being pitched at ID cards.

Drexler Technology's LaserCard is an optical memory card capable of storing up to 4Mb of data suitable for write-once and read-only applications. It's completely non-erasable, highly durable and has the built-in facilities to store digital photographs, signatures, voice and finger prints and even X-ray pictures! Data is stored and read by laser and data can be output to video printers.

More exciting for the future of mass storage is Canon's new optical



• Canon's optical card system uses cards which store 2Mb of data and cost only £2.40.

card system which includes a £900 reader/writer that can access 2Mb laser cards costing only £2.40 each.

Although it won't be available until next year you can get further details on 01-773 3173.

SMART USES

How convenient it would be to use just one card instead of several for all your everyday uses – withdrawing cash, making phone calls, paying for goods. That's the prevailing philosophy of smart card manufacturers. How inconvenient to lose just that single card though! In the meantime, these are the areas currently getting smart:

- Health care and social security
- High-security access
- Optical filing
- Electronic funds transfer
- Automatic fare collection
- Shop floor control systems
- Portable personal databases



• Don Bluth with just a few of his creations.

DIGITAL DISNEY

With *Dragon's Lair* and *Space Ace*, Don Bluth can arguably claim to have delivered a new dimension in home computer entertainment. Andy Storer casts a critical eye over the future of 16-bit computerised cartoon action...

Remember *Dragon's Lair*? An arcade extravaganza running off laser that ate money like there was no tomorrow? Well, tomorrow's already here in the form of its sequel, *Space Ace*. But now Don Bluth's game is now due out on the ST after a recent debut on the Amiga, and while its gameplay may leave a lot to be desired, there's no doubt its graphics and sound push the 16-bit beauties to new horizons.

These two games, and to a lesser extent *Who Framed Roger Rabbit?*, point the way to a possible future for 16-bit entertainment. With more gameplay, could we see the emergence of a cartoon industry centred around the micro? It's not too difficult to imagine –

the only countervailing factor is the lack of cheap mass storage devices. Because high-quality graphics take up acres of disk space the genre is limited. It's hardly surprising gameplay is downgraded when full interactivity would require dozens of disks. But with the emerging technology of CD-I – witness Titus's release of its *Titan* CD-I game announced in *Express* 68 – the storage capacities will be available. With the likes of Pixar, and Industrial Light and Magic expressing interest we could see simultaneous cinema/computer releases.

BLUTH'S PAST

Disney-buff Bluth was lucky enough to take an apprentice job working on the master's *Sleeping*

Beauty. As assistant animator, he was responsible for 'tweening' – the process of drawing all the in-between frames for the key characters' actions. By 1978 he'd worked on *Robin Hood* and *Winnie the Pooh* and directed *The Rescuers*, *Pete's Dragon* and *The Fox and the Hounds*. However, artistic arguments with the Disney organisation, principally over what Bluth believed to be the company's diminishing creative standards, led to him quitting to form his own company.

Five years of experimentation followed, in which time he looked at ways of combining computer technology with traditional cartoon animation. And then in 1983 he teamed up with Magicom to produce the first interactive cartoon – *Dragon's Lair*.

A LOOK AROUND THE GAME



• The alien Borf greets you on the opening title screen.



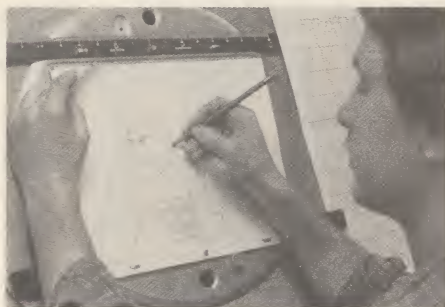
• One false move and you're so much dead meat for the Cavern monsters.



• You can leap out of the way in time for these two guard robots to shoot each other.



• When you first get to Borf's ship you have to take on these two guard dogs.



• The original artwork for *Space Ace* was hand-drawn and then cel painted before being filmed. The resulting animation was then digitised onto an Amiga using Digi-View and ported over to the other machines from there. In the process the 16 million colours of the original Laserdisc are reduced to 16.



• The very first action sequence – above the arcade version, and below on the Amiga.



CRITICISED

Although criticised for the implementation – the gameplay relied on lightning-fast responses – the Laserdisc arcade version became well-known enough to become a classic. A classic for all the wrong reasons though. The memory is more likely to revolve around who put the most 50ps in the slot trying to complete even the first screen, than what a lasting audio-visual experience it was. Nevertheless, 25 minutes of animation, filmed, videotaped and etched into the pits of a Laserdisc, became a game played in 25,000 arcades worldwide.

Dragon's Lair found its way to the Amiga over here last year in the form of six disks. And impressive stuff it was too, except for the fact that it was more or less unplayable. It seemed to be consigned to the demo shelves – to be only taken out to impress one's friends with the tremendous power of the Amiga. Some six months later it appeared on the ST and Magicom had proved you didn't necessarily need state of the art custom graphics chips to deliver leading-edge visuals. The argument remained though – was this a game to merely view or were you expected to gain from a gameplay experience? The truth is somewhere between the two – it remains the ultimate demo and, as a consequence, by far the most sought-after pirated game.

UNRELENTING

Space Ace could have been different, but it remains the same. Only this time the action is half as fast again and unrelenting. What gameplay there is is smoother, but the degree of interaction between the player and cartoon character is, again, minimal. So what's Don

Bluth playing at, bringing out games at £45 a throw that he himself admits a nimble player can complete in eight minutes?

For starters, he would argue that in interactive cartoons he's found the first new application for animation since 1949 saw the birth of *Crusader Rabbit*, the first character designed and animated specifically for television. Secondly, he's talking 'Total Resolution Graphics'. Canadian coder Readysoft has the contract to transfer all Bluth's work to personal computers. The full-screen animation and sound of the original laser show has been squeezed into 40 fast-action scenes using advanced compression techniques after being digitised onto the Amiga using Digi-View. Then all backgrounds and foregrounds are touched up by a team of a dozen artists. PC and ST versions are then ported over. In the process the 16.7 million colours of the Laserdisc become 16 colours on the 16-bits, but the results remain impressive.

Next on the cards for Readysoft is *Dragon's Lair II* for all 16-bit machines. Whether this will make it to the arcades remains to be seen – Nintendo has the rights to the game. ■

PLAYING THE CARTOON

Now that lots of coins have been replaced by lots of notes, what does *Space Ace* offer for the gamer? Well, you take control of Space Ace himself in a battle against Borf, an alien tyrant who's decided to take over the Earth by turning adults into children. Only thing is, *Space Ace* is now child himself called Dexter, and he also has to rescue his sidekick, Kimberley. The action begins on a cliff-top overlooking Borf's ship,

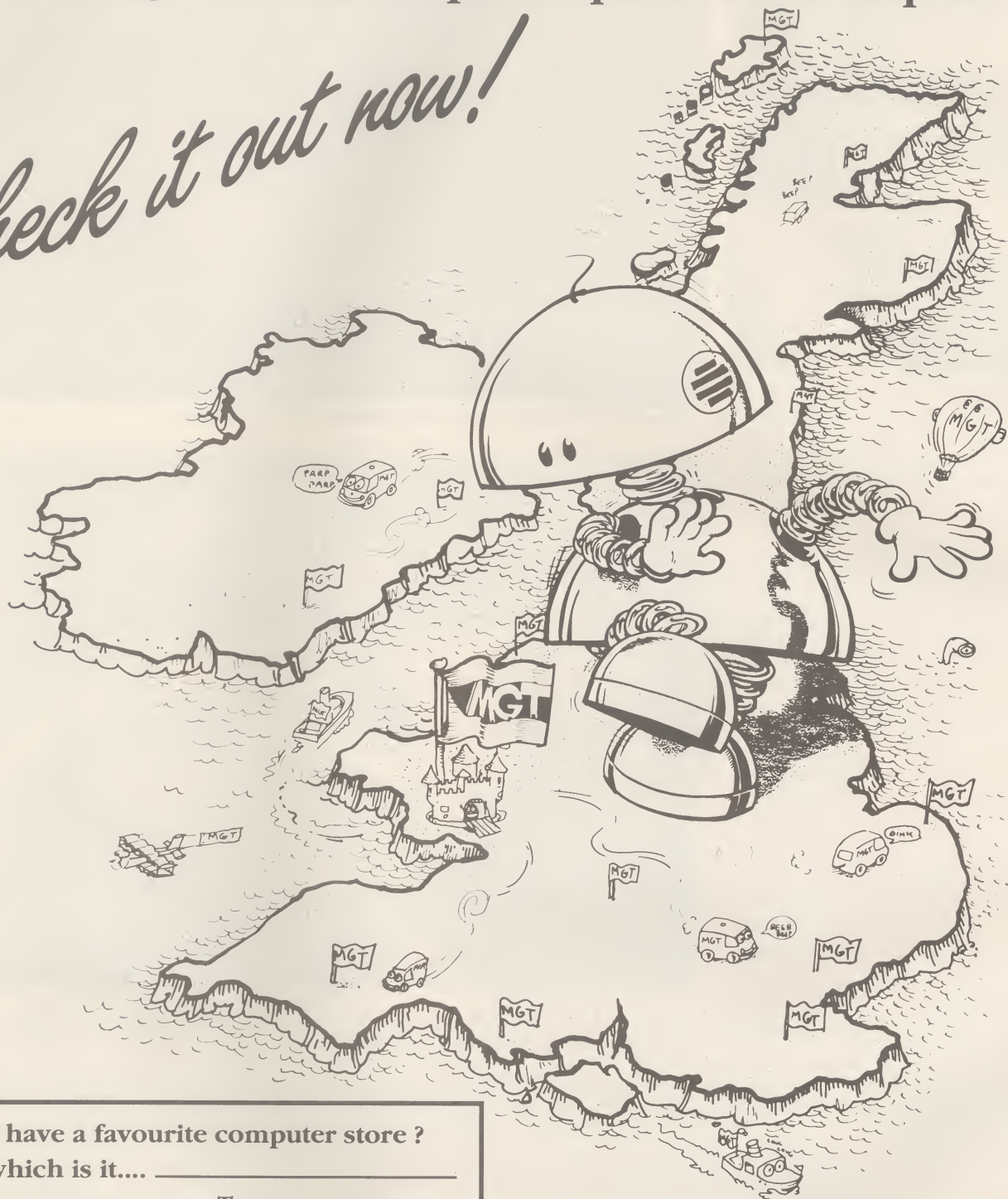
where you must dodge laser blasts and continues in a similar vein past rocky canyons and stomping robots to Borf's ship itself. Here you're up against guard robots, guard dogs and auto-defence systems. Finally you have to take on Borf in hand-to-hand combat with laser staffs and rescue Kimberley. It's all extremely fast action stuff but unfortunately all your input in the proceedings consists of is moving your joystick at

the appropriate time. Which means incessantly. After a while, as with all shoot-'em-ups irrespective of their quality, you know all the timings and it's plain sailing. With *Space Ace* there are probably a couple of manouevres per level to keep you on their toes, and the inclusion of a Save Game feature means that it's made even easier to complete. But in the meantime, just check out those graphics...

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TECH TIPS



TIP Feeding time

The problems discussed recently in Tech Tips about Spectrums and their random insertion of line feeds when printing documents can be cured by me.

The problem lies with the Spectrum's interrupts which occur every 20ms and insert intermittent random line feeds and occasional double characters. I have written a routine to combat this and can now supply it to other sufferers on 3-inch disk for the princely sum of £5.

Neil Morgan, 85 Crescent Road, Bolton, Lancashire.

HELP! Cyber man

I intend to use the *Cyber 3D* animation series and I require a two-megabyte Atari ST to run it.

One of the advertisers in *Express* is offering this at £450, which is just superb! Is this price so low because the STE is so easily upgraded and the memory chips are cheap, or are there inferior memory

upgrades for the STE which should be avoided?

B. Abraham, West Jesmond, Newcastle upon Tyne.

Don't worry about inferior upgrades and the like! Large memory STEs are priced thus because they're easy to upgrade using cheap and widely available SIMMs (Single In-line Memory Modules). Rush out and buy the STE at £450 – you won't be disappointed!

TIP Kit capers

Some time ago I was fitting a second drive to my Amstrad PC1512 and decided to fit the Citizen 525MFR kit. The instructions supplied with the kit were a little cryptic but by means of trial and error I discovered the correct procedure for fitting the drive which might be of help to other readers.

First, the original drive has to be configured to enable it to operate correctly in a two drive environment. This is

Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Uncle Tech Tip, he'll see you right. Send your sorry stories to Uncle TT, 30 Monmouth Street, Bath BA1 2AP. There's a prize for the most pitiful tale

done by removing it from the casing and shielding, looking at the rear of the drive where there will be a row of points marked from DS1 to 4. Behind these there is another set of points marked VA and DA. Remove the jumper from the VA terminals and place it on the DA terminals, re-assemble the drive and place it back in the case.

Next, set the drive selection switch on the Citizen drive one notch back (towards the front of the drive) install it into the casing, connect to the existing interfaces and bingo!

Either drive can be configured to be drive A by a reversal of the above dip switch settings. It only remains to go into the CONIG.SYS via the *Edlin* editor under MS-DOS and add the line `DRIVEPARM=/D:N` where N is the device number (1, 2 or 3). Hope this helps some poor reader.

T A O'Connor, Port Glasgow, Inverclyde.

HELP! Deep blue C

I have just got hold of *Sozobon C*, but I am experiencing problems working out how to use it. What would greatly be appreciated would be a step-by-step guide to how to compile, assemble and link a C source program, preferably with an example of a GEM program.

Ian Ferguson, Carlisle, Cumbria.

The problem with using public domain programs, alas! Worry not however, as *Express*' sister magazine *ST Format* is currently producing exactly what you require – a complete guide to programming using the C language with examples based upon *Sozobon C* and GEM. *ST Format* costs £2.95 with a disk and is available from good newsagents everywhere.

HELP! PD quick!

I have been building up a nice little collection of public domain disks from the covers of the monthlies ready for when I buy an ST. However, what can I do now? I am doubtful whether these disks will work on the STE. But if I do get the STE, will the monthlies soon be publishing disks that won't work on a good old plain ST?

By all accounts the STE is just a big spanner in the works, and while no-one can predict the outcome, I wonder whether it might be good idea to put off the purchase until the matter has been resolved. I have in mind using my STFM1040 for music sequencing software. Earlier I was keen to go for an ➤

HELP! Multi-lingual Amiga

Here are a few points regarding Chris Winner's letter in *Express* 63 (He wondered whether buying an Amiga in Germany was a good idea – Uncle TT).

Any software bought in Germany is likely to have its instructions in German and may well not be covered by a guarantee back here in the UK. There are however, quite a number of software titles that have multi-lingual instructions, it's just a case of shopping around. As for buying an Amiga out there, work out the exchange rates and if it's a bargain then go for it. The machine will not talk to you in German except when you insert the Workbench, Extras or The Very First disk. Fortunately, all of these are available here in the UK with manuals in English from various sources (for example from Wizard Software). Also you must configure the keyboard to GB so that it understands English.

You must be aware, however, that a German keyboard has its Y and Z changed about. Bear in mind that it will cost an extra £20 to convert to an English language system, but if the offer is cheaper then it could be worth it. Sorry I rambled on a bit, but it might be useful to anyone considering this method of obtaining a cheap Amiga.

And now to some questions. Is there any way I can find out about modems and bulletin boards before I part with my money? What can I read? My son has a Commodore 64. Can one modem be used both for this and my Amiga? Where can I find out about the Amiga in amateur radio? Is there any way I can use the Commodore 64 as a printer buffer so that I can get on with other things while my MPS1230 is squeaking away?

Andy Beveridge, Fleet, Hants.

For the German Amiga tips – well done! There is a very

simple way to find out all about modems, bulletin boards, general ham radio principles and all manner of other communications subjects, buy a copy of the *Hacker's Handbook* by Hugo Cornwall. Originally published in 1983, the book caused a storm of protest from the powers-that-be for its frank narrative detailing hacking methods. After various bits of litigation, the book was revised and is currently in its fourth impression. Now without many of the phone-phreaking and hacking snippets, but still bulging with juicy sections detailing all aspects of comms, the *Hacker's Handbook* is the best read around for anyone about to embark on a serious of nights before a glowing computer screen and trilling modem. The *Hacker's Handbook* (ISBN 0 7126 9711 X) by Hugo Cornwall is published by Century Hutchinson and is priced at a reasonable £6.95.

You can use the same modem with the Amiga and the C64 as long as you have an RS232 interface for the C64. The C64's hybrid serial ports don't allow the connection of third-party peripherals, so you must attach an interface. One of the better suppliers of all things C64ish is Meadmore LTD. Commodore 64 owners everywhere sing the company's praises as it supplies a wide range of electronic bits and pieces for the C64. Contact Meadmore on 051 521 2202.

The C64 as a printer buffer? Not without serious programming. The task would require a patch to intercept data being ported over from the Amiga, store it in RAM and write it out to the printer port – not an easy task! However, the TechTippers are an inventive lot and someone, somewhere may have already solved this particular little printing problem. If you are that TechTipping programming genius then call me. Fame and fortune awaits...

Amiga, but most indicators steer me to an ST for the widest choice of music sequencers.

Richard Watkins, Misterley, Shropshire.

An unfortunate situation. I can say with authority that most of your disks won't work if you buy an STE. Current PD library compatibility estimates suggest well over 50 per cent of public domain disks won't run with the STE. Monthly magazines are now testing prospective cover disk programs for compatibility with both machines.

The STE may be the newest machine from Atari, but there are still many thousands of earlier STs out in the field which must be catered for. Be aware, however, that the STE will become the standard ST machine and is the computer to buy if you're looking for an Atari. Soon the compatibility problems will be a thing of the past and everyone will be writing to support the new machine.

The ST with its built-in MIDI port is the first choice for musicians who want to experiment with sequencing, and there are lots of professional-quality packages available to get the most from these ports. Try *Sequencer One*, a superb sequencing package from Gajit's Music Software (061-434 2768) priced at £79, or the excellent *Prodigy* from The Digital Muse (01-586 3445) priced at £129.95.

HELP! Which computer?

I wish to upgrade from present C64 to either an Atari 1040STE or a 1Mb Amiga. I have done quite a bit of Commodore 64 programming – some of which is quite lengthy – and wish to remain with a type of BASIC as near as possible to the one I'm used to.

I'm sure that I read in *Express* that Atari BASIC is not very good, so which of the above computers do you think I should get? And which version of BASIC would be the best for me – requiring the least changing from the programs that I've already written?

I have no interest in games and the programs that I write are mainly for my own enjoyment as I am retired and writing programs provides an absorbing pastime.

Also could you recommend a suitable VGA monitor to use?

John Rosbottom, Wigan, Lancashire.

The ST's BASIC is widely regarded as being a slow and cumbersome implementation of the language which should be replaced as quickly as possible by anyone purchasing the machine. That said, and bearing in mind that your main use is for BASIC programming and that you already have Commodore equipment, I would advise you to stay with CBM and buy an Amiga. The Amiga is an excellent machine with a quality BASIC which although not the best on the market is certainly better than the Atari offering.

HELP! Patching up a PCW with some extras on the cheap

I own a PCW8256 which suits me just fine, but I would like two things. Firstly more memory and secondly, a disk drive using cheaper disks. Now I know my heart's desire may be purchased with wads of money but it occurs to me that perhaps I might be able to get the requisite chips cheaper from another source, but where? Please let me know.

And I notice that 3.5-inch drives are cheaper when not advertised in dedicated PCW magazines. I read that CP/M can run these drives without problems, but can I get the connectors to attach it to my PCW? I have full instructions for these projects from another magazine, but no sources.

Jonathan Guyver, Penryn, Cornwall.

Your heart is about to receive its desires! It is perfectly possible to buy memory chips, drives and all other bit and pieces computerish from third-party sources, usually making a vast saving in the process.

Memory chips? Call Maplins



• Patch in those memory chips!

Electronics on 01-748 0926. This company is a respected supplier of all kinds of electronic components and stocks a vast quantity of memory chips (256K DRAMs are currently under £1).

As for a disk drive, Evesham Micros (0386 765500) sell several 3.5-inch drives. Although not intended for use with your PCW (the cheapest

currently is that for the Atari ST), these are standard drives that will connect to any micro able to support a drive of this format. The device comes with a separate power supply and a standard 34-way edge IDC connector. If the project instructions you have require a different connector Maplin is again the supplier to contact.

VGA is a display standard for the IBM-PC and its many compatibles and has nothing to do with either the Atari ST or the Commodore Amiga. For a very good monitor you could do worse than examine Commodore's own 1802 colour display. I know many Atari addicts who swear by the Commodore display. Available from suppliers of the Amiga, the 1802 costs around £200 discounted.

HELP! Library litigation?

My friend and I are considering setting up a public domain service to provide cheap public domain software at only £2 per disk. While looking through a PD catalogue, I noticed it said that you could copy and distribute the disks but you couldn't sell them. Would you please explain this to me as I don't really want to break any laws.

Gareth Hall, Westminster Park, Chester.

Public domain software is that which the author has said can be copied and distributed entirely free – that is without having to pay him/her anything for having the program. There are several clauses associated with all this copying and distributing however, the first of which states that you must not make a profit by selling the program.

If the author has declined to accept money for their work, it's only fair that you don't either, merely for copying and passing it on. You must not change the program in any way and must include any information and data files associated with the software. This is to stop anyone changing just a small part of the program and claiming sole authorship.

Right, so how does anyone make a

living from running a PD library? Well, although you're not allowed to make a profit from the software, you can make a small profit from the sale of the disk upon which the software is stored, and for the electricity and time and effort invested by you during the copying process, and this is indeed how many PD libraries form the sole income of their librarians.

There's also one other type of software which falls somewhere between the PD ideal and commercial offerings – shareware. Shareware is software which can be copied and distributed at will, but if the recipients decide that they like the programs and will make extensive use of them, then they must make a donation to the author.

Sometimes the amount of this donation is a fixed sum decided by the author, sometimes it is just how much the recipient thinks the program is worth. Although shareware is exceptionally popular in the United States among authors and users alike, here in the UK the idea has not yet fully caught on. Users are reluctant to part with their cash. This has led to many shareware programs being re-released here as commercial software.

If you want to set up a public domain library and sell the disks at £2 each, go ahead! You'll be one of the cheapest libraries doing so, and will probably enjoy a large amount of custom. It's perfectly reasonable to send for other libraries' disks, copy them and include them in your own library. Many librarians may moan at this because they've invested much time in garnering their own collections, but as they don't actually own the software, you're at liberty to copy their disks at will. Treat the

software with respect, abide by the unwritten rules of the PD concept and have a good time.

HELP! Trusty Tandy

After recently blowing the dust off my trusty Tandy DMP105 printer I have got it to work again. It used to be hooked up to my TRS80 model 1 computer, but now I have an Atari 520STFM and I was wondering if it would be possible to connect the DMP105 to my ST? If so, would I be able to use it to do screen dumps and to output from DTP packages?

It's only a 7-pin device so I'm a little worried that it won't work.

James Roskell, Blackpool, Lancashire.

You can indeed connect your DMP105 printer to the Atari 520STFM but you'll probably have to make up a printer driver in order to get it to produce bit-image graphics dumps from desktop publishing packages and screen dumping programs. It will work perfectly well as is however, with word processors and other software in straight ASCII mode. Most of the popular packages requiring printed output, such as *1st Word*, enable you to create a printer driver to suit your particular model.

If the prospect of digging out obscure printer codes appalls you, have a look through some public domain catalogues. Many libraries stock a range of printer drivers to suit forgotten printers. The Tandy device was a popular printer a few years ago, so someone may have put together a suitable driver. One of the better libraries is that run by Mike Goodman. Contact Goodman PDL on 0782 335650 for a copy of their latest catalogue. ■

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■ Magnum Opus

I am writing to inform all Opus Discovery owners that there are cheaper ways of getting these repaired than sending them back to Opus.

I help to run a user group for this disk drive, and have had two people ring me up to tell me they have been told it will cost £100 to repair the device. This is ridiculous, as VSE Technical Services will repair the drive for £21.90.

One of our new members who actually sent his unit to Opus was sent a letter telling him he had three choices: to send £115 to have it repaired, to send £15 to have it returned or that they would dispose of it for him. This is not the treatment I would expect from a manufacturer the size of Opus.

The address of the Spectrum Discovery Club is SDC, 57 St Saviours Road, West Croydon, Surrey CR0 2XE.
B D Mumford, West Croydon, Surrey

Good grief! Is there anything going that doesn't have a club for users?

■ When I'm 64

I am fed up with the attitude taken towards 8-bit micros and, in particular, the Commodore 64 (of which I am an owner). You are treating the 64 as if it is totally dead. It used to be worth half a page (if not a full page) in the Your Format section, and now it is lucky to get a quarter.

The Archimedes gets more than that, and has much less than half the user base of the 64. I am not saying that it deserves a full page purely because I have one but because more people have them than have, as an example, Amstrad CPCs (page 15 same issue).

There is much more life in the old dog yet, even though at eight years old it is positively ancient technology compared with RISC, CD-ROM (but even a form of that is available on the 64), 80486s, etc.

Please, please give the 64 more coverage or I, and many other 64 owners in Carlisle with whom I am acquainted, will stop buying *Express*.

D Robinson, Brampton, Cumbria

I am prepared to review the amount of coverage given to the machine. If there is enough interest among readers, and if coverage would not simply double the number of games covered, it could be an idea. All thoughts welcome.

■ An engineer told me

You were a little harsh with Philip Atkinson (*The man who wanted to convert his TV to a monitor* - Ed) in the Tech Tips column. Encouraging technophobia solves no problems, and there is not a 'qualified' TV engineer who was not a beginner once.

Everyone involved with computers should know about the dangers of the EHT circuits. There is a line-output valve



or transistor connected to a line-output transformer ('loppity'), which feeds via a stick-rectifier to the body of the cathode-ray tube. You can see the thick wire - often coloured red - going to a plug on the tube body. All these parts are very dangerous indeed.

In a black-and-white system the voltage is usually about 7,000. Colour systems may have as much as 25,000 volts and may use a voltage multiplier in place of the stick-rectifier. The danger is that you do not need to touch these parts to be killed. The voltage may jump at you if you approach to nearer than four inches.

The simple answer is to switch off. Leave the set for at least half an hour. The stick-rectifier is a one-way device, so the electricity can get into the tube but may take a long time to escape. I once had a shock off a disconnected tube five months after it was removed from a set and put on the shelf!

Silly 'engineers' sometimes play around, drawing long sparks from the EHT. This is crazy - it makes the loppity and output transistor overheat, causing premature failure.

If you see a thick coating of dust and grease on the EHT circuits, you will know that the set needs a clean-up. If you have family around you, put the mains plug in your pocket so that nobody can plug it in accidentally and kill you.

Clean the EHT cable, stick-rectifier and loppity with tissues moistened in isopropyl alcohol (obtainable from a chemist). If there is a grey electrically-conductive paint on the outside of the tube, do not treat this area. Use a dry rubber glove to avoid shocks.

After the alcohol has evaporated, you can try the set. I recently saved a TV set that was on its last legs. The picture was jumping and the circuitry was buzzing and overheating - all because of a build-up of grime.

Further, if you are upgrading the memory of a PCW 8256 you will need to be able to identify the EHT circuits so as not to get hurt.

EXPRESS MAIL

Britain's liveliest computing forum - packed with comment, controversy and conflict. Write and tell us what you think! Reach us at: Express Mail, 30 Monmouth Street, Bath BA1 2AP. Sorry, no personal replies. This week's replies written by Martyn Lester.

You can also tell if grime is accumulating. A clean-up every three years might be advisable - but not more frequently.

Philip Atkinson was right when he suggested converting a TV into a monitor - this has been done. In the early Eighties there was such a fashion for this that most electronics magazines published their methods. Manufacturers noticed the trend, and most of them brought out a range of combined TV-monitors.

Not all sets are suitable. Only those with an isolating transformer can be converted economically. These often have an earphone socket and a 12V car-battery input. You need the full type-number of the set. Sony is a maker, Trinitron is a kind of tube. The type-number is usually a small panel on the back of the set.

The full circuit diagram for virtually all sets is obtainable from Newnes Radio and TV Servicing. Holborn library in London has this.

Wireless World (now *Electronics World* and *Wireless World*), *Practical Television* (now *Television Magazine*) and the defunct *Electronics and Computer* all had articles on conversions. However, I do not think they would take too kindly to enquiries of this kind. Best look for back-numbers in libraries.

The makers of conversion kits may no longer make them. These kits involved a small panel to be fitted, but the fashion has passed.

The Trinitron tube is a low-resolution device designed for viewing at a distance. Computer monitors are designed for close viewing. Amstrad took a lot of stick when it fitted the cheapest tubes to its PC 1512 colour computers. Even if converted, the Sony Trinitron would only give quality approaching the 1512.

The BBC Model B has a built-in colour RF modulator which gives just enough blurring to avoid the moiré ➤

■ Unfortunately, some have a washer loose

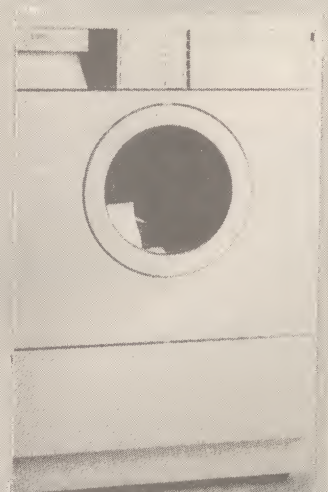
Having read about the problems encountered by Marcus Turvey in *Express* 68, I felt that I must write in to explain my experience.

I had been using my new Commodore Amiga for several weeks when I too realised that I had made a mistake - what I really needed was a washing machine.

Being fairly accomplished in the use of a soldering iron, I began to make the necessary alterations to the computer. I attached two hoses to the joystick ports and cut a hole in the keyboard casing to put the washing in.

My Amiga is now rendered useless, and my guarantee is invalid. So I too am left with nothing (except third degree burns to my chest, hand and face).
Jon Hawkins, Monmouth, Gwent

I hope this isn't going to turn into a 'my Amiga is better than your fridge' debate. Readers may feel there is a



• Washing machine or computer?

startling resemblance between this writer and the author of the other letter on this page. I wonder if they are in any way related?

fringes that would appear. Conclusion – honestly, why bother? Why run around seeking diagrams and parts, then risk your life and end up with a second-rate monitor? You may even spoil a nice telly.

If you must have a monitor, best look for a second-hand Microvitec monitor in the adverts in *Express*. It will probably be the best and cheapest option.

Charles Wehner, Blaenau Ffestiniog, Gwynedd

Thanks for the advice. I hope that careful readers are able to extend the life of their equipment by following it.

I must leap to Uncle Techtip's defence, because I know that he feels he is under a moral obligation not to set people off on a job which he considers, from his assessment of their letter, that they would bungle. This applies particularly if some risk to personal safety would be involved.

It is unfortunate if his response to that particular letter has come across as technophobic. I think he would be one of the last people on the planet that might be accused of technophobia, and the bulk of his pages each week are as clear an indication as one might wish that we would encourage people to make the most of their technology.

It may seem rather paternalistic of us, but we do tend to draw a line between people who say 'I know I need to do A, B and C, but can you tell me if this is an occasion where pin 1 should be connected to pin 4 or to pin 6?' and letting loose people who give no indication that they could wire up a three-pin plug on a job that requires some degree of caution.

We are not quite as cruel as you may imagine, because we took the liberty of inventing the name 'Philip Atkinson' to protect the real author from the jibes of his peers.

That people who try thoroughly stupid things do exist was amply illustrated by the letter a couple of weeks later from Marcus Turvey ("an electron-

ics technician by trade") who trashed his computer by attempting to fit totally incompatible custom chips. And speaking of him...

Competition chaos

Late one Wednesday night, with rain lashing against the windows, an ST owner was going through his back issues of *New Computer Express* when, to his horror, he discovered a competition that he hadn't entered (*Express* 55).

As he browsed through the questions, thinking of how stupid he was not to have entered, he came across question 9: 'What is the charge of an electron?' Answers available:

- A. £15 an hour
- B. Gross indecency
- C. Negative

The ST owner in question thought to himself: 'None of those are right'. He continued to think: 'The charge of an electron can be negative or positive!' When he got to school he asked his so-called intelligent friends if this was true.

(He then rang up our Features Editor, said that we were a bunch of derek-heads for getting the answer wrong and asked for a prize for pointing this out, didn't he? – Ed)

All you readers out there may be wondering why I referred to them as so-called intelligent friends, this is because looking through a chemistry book while writing this letter the ST owner has discovered that he has made a large mistake and that the electron is, in fact, negatively charged.

I guess there's not going to be a prize for being so stupid as to not enter an *Express* competition and for doubting the word of such a nice magazine?

Brett Wilson, Epsom, Surrey

Too right there isn't. Doubtless you and your pals were thinking of an electrode, which can either be positive (an anode) or negative (a cathode).

While we are on the subject of that

competition, apologies are due to a number of readers who have not yet received their prizes (letters too numerous to print; red faces all round). Inheriting this has not been one of the fun parts of taking over the *Express* Editor's chair.

I am assured that by the time this issue goes to press all CRC virus killers will have gone out; adequate packaging has now arrived for the joysticks and cassette racks, which have been going into the post over the last few days; and Electronic Arts prizes have been sorted during this week and should be in the post within days.

Thanks to prize-winning readers for their patience, and rest assured that you will all receive your goodies.

Head case

I am writing to express my deep disappointment in your magazine due to your answer to my earlier letter which was written in regards the Psion Organiser.

I must tell you (so that you can right the wrongs) that my name is Derek Head, not Dick Head as you suggested in *Express* 69.

I also have a question (now that I have sold my Psion): what is the infinite credits cheat for the NCube laptop version of *Elite*?

Derek Head

It did seem a good guess as to what the D stood for, but I stand corrected. Send us your NCube and we will check the problem out for you.

Stars on Tuesday

This being my first ever letter to a magazine I am pleased that it is in praise of a mail order company called Mediaware.

The story goes: Friday afternoon/evening – the time 5:05pm. Make telephone call to Mediaware; ask if they carry the Star LC10 printer in stock. Yes, they do have them in stock. Tell them I will phone them back. The time is now 5:15pm. I decide that I will order it.

It is the same person I spoke to earlier, the reason for this was explained. She and her colleague were the only ones there – everyone else had gone home. She was apologetic that my order could not be processed before Monday – but I would certainly get it Tuesday afternoon.

Well, you may say that you've heard that one before; so did I. But, arriving home Tuesday evening, I found that it was there and had arrived at 2:30pm approx.

I was well and truly over the moon, and if ever I want anything else they will get the order not only for their service but the way I was treated over the phone was a pleasant and enjoyable experience.

Mel Mayers, Macclesfield, Cheshire

I think readers must have given up moaning for Lent.

NEXT WEEK

MAC ATTACK
Are the Macintosh machines worth buying?

CPC CD
CodeMasters brings its excellent CD compilation over to the Amstrad format

GLEADOW SPEAKS
Atari's UK boss speculates on the company's future

PLUS

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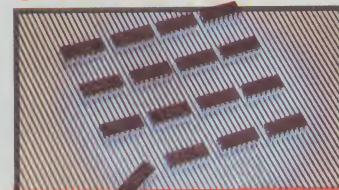
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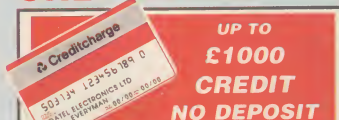
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